Indian and Northern Affairs Canada

CANADA'S NORTH:

The Reference Manual

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Preface

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1.0 Introduction

The Northern Reference Manual attempts to do what is probably an impossible job to provide answers to the most often asked questions about that vast expanse of Canada, Yukon and the Northwest Territories.

The subject matter is addressed under various headings as shown in the Table of Contents. For the most part, it was written by people with an intimate knowledge of their subject and a long acquaintance with Canada north of 60a/°N. Many topics might have been discussed and were not, or could have been covered in more detail; limitations of space require a less than complete treatment of the subject.

Indian and Northern Affairs Canada (INAC) hopes that the manual will be informative to any who have more than a passing interest in north, its resources, its people and their history, and the ways in which each has shaped the other. We have tried to include references where a more complete treatment of a particular topic can be found and we welcome suggestions for additions or changes which will be incorporated as updates are issued from time to time.

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2.0 The Physical Environment

2.1 Introduction

Yukon and the Northwest Territories make up about one-third of the total area of Canada. Yukon covers 482 515 km^2, the NWT 2 005 500 km^2. Because the territories lie north of latitude 60°, they receive much less direct sunlight and, hence, warmth than anywhere else in Canada. The winters are inhospitable: There is intense cold, long periods of darkness and less precipitation than in most deserts.

Northern regions are commonly classified as being either *arctic* or *subarctic*. The tree line is probably the most conspicuous feature characterizing the boundary between the two. In Canada, the tree line extends from northern Yukon diagonally south and eastward to Churchill, Manitoba, then follows the southern coast of Hudson Bay to Great Whale River, Quebec, and then runs eastward to Ungava Bay and the Labrador Coast. In general, the ground is perennially frozen north of the tree line, and vegetation is characterized by tundra species and low-growing shrubs. The scenery varies from undulating lowlands in central Keewatin to spectacular, ice-covered mountains with deep fiords on the Baffin Island coast. Arid, desert-like landscapes typify the far northern islands such as Ellef Ringnes and Amund Ringnes. South of the tree line, the northern boreal forest extends throughout the lowlands of the Mackenzie Valley, while in the higher elevations of Yukon and of the Mackenzie Mountains in the NWT the boreal forest merges with open woodland and forest tundra. Alpine tundra conditions occur in some of the highest elevations.

The Arctic Islands are worthy of special recognition since other northern polar countries do not possess such extensive ice-free areas extending so far north. The Arctic Islands constitute a northern archipelago which reaches to 83a/°N. Some of the islands are large (e.g., Baffin, Victoria, Banks and Ellesmere islands). The Arctic Islands experiences some of the harshest climatic conditions in Canada. The High Arctic is an integral part of northern Canada, even though it is remote and sparsely populated.

2.2 The Climate

2.2.1 General

Arctic, boreal and montane climates characterize all NWT and Yukon. It can be extremely cold in Canada's northern territories where mean annual temperatures are usually near or below freezing and winter temperatures are frequently below -30a/°C. The *arctic climatic zone* refers to all areas north of the tree line, while the *boreal climatic zone* refers to those areas south of the tree line. Basic climatological data for a number of localities are given in Table 2-1.

Because of the northerly latitudes, there is a lack of incoming solar radiation during fall and winter, and even a lack of daylight north of the Arctic Circle at various times during the winter (Figure 2-1). As a consequence, lowest temperatures occur in February and March in the far north and in January further south. By reflecting solar radiation, the snow cover impedes the rise of temperature in the spring.

The climate in Canada's north is influenced by the year-round presence of ice in both Greenland and in the Arctic Ocean and low, incoming radiation which influences the atmosphere and causes arctic air masses. While arctic regions usually experience these air masses at all times of the year, the boreal regions tend to be affected by these air masses only in the winter and spring. In summer and fall, these cold air masses are replaced by westerly, relatively warm air currents coming from the Pacific Ocean. The latter accelerate the thaw period in the interior of Yukon and in the Mackenzie Valley and favour high summer temperatures, often exceeding 25a/°C.

2.2.2 Temperature

Mean daily temperatures for January and July (Figure 2-2) illustrate the variability of temperatures in northern Canada.

In the NWT, summer temperatures of the warmest months average 12.5a/°C in the northern boreal forest, 8 to 12a/°C north of the tree line and 3 to 8a/°C in the Arctic Islands. By contrast with the Yukon, topographic effects are unimportant there. Winters are cold and long, with temperatures in February averaging between -15a/°C and -30a/°C. The growing season for native vegetation (but not crops) may be as much as four to five months in the boreal forest, three to four months north of the tree line and less than two months in the Arctic Islands. The frost-free period in the Mackenzie Valley varies from 50 to 100 days, while north of the tree line an average of between 40 and 60 frost-free days is more typical.

In Yukon, the frost-free period varies from about 66 to 92 days, depending largely on altitude and other local site conditions. The longest frost-free periods recorded were at Dawson (92 days), Whitehorse (87 days) and Watson Lake (85 days). Frost-free periods are shorter for Yukon north of Dawson and for areas at elevations higher than 650 m above sea level. For example, Mayo has a frost-free period of 66 days, while Inuvik, NWT, is frost-free for only 45 days.

The mountainous terrain of Yukon and its relative proximity to the warm Pacific air masses result in marked variations in weather patterns. In summer, sheltered valleys heat up. The highest temperature on record is 35a/°C, at both Dawson and Mayo. In winter, arctic air masses often remain stationary over the interior of Yukon; temperature inversions can develop in the valleys and extremely low temperatures result. The settlement of Snag holds the record minimum temperature (-63a/°C) for the entire North American continent. These inversions may exist for several weeks, only to be followed quickly by relatively warm temperatures as the air masses change.

2.2.3 Precipitation

There are relatively few cyclonic storms in the arctic regions north of the tree line, and thunder and lightning are rare. Between 50 per cent and 70 per cent of precipitation falls as snow. Total precipitation, including snowfall equivalent, averages only 100 to 150 mm in the Arctic Islands but increases to 250 to 300 mm at the tree line.

Much of the polar desert is swept bare of snow during the winter. Snowmelt in the spring runoff is greatly affected by topography because the winter wind deposits snow in gullies and on lee slopes.

South of the tree line, snow depths and precipitation are considerably greater, and trees and shrubs trap the snow until the snowmelt becomes more even.

Most precipitation occurs either in the autumn or early spring. Average snow depths of 50 cm or more are not uncommon in the southern Mackenzie Valley and Yukon.

2.2.4 Climate and Man

Nowhere in Canada are people more conscious of the climate than in the North. Building construction, work schedules, leisure activities and transportation patterns are determined largely by climatic conditions. Strong winds and low temperatures, especially on treeless tundra, can produce severe and sometimes dangerous winter conditions for man.

In parts of Keewatin and the Arctic Islands, it is not uncommon, for air temperatures to fall below -40a/°C, with winds above 30 km/h. In January 1935, Chesterfield Inlet recorded a mean daily temperature of -43a/°C and a mean wind speed of 16 km/h. *Windchill factor*, based on the cooling power of the wind upon naked flesh, is a term widely used in Canada. To better understand what this term means, it is often easier to think in terms of an equivalent temperature which represents the temperature still air would have in order to give the same windchill factor as the actual air temperature with a wind of given speed (Figure 2-3).

Blizzard conditions are another climatic hazard. These exist when there is snow or blowing snow, winds greater than 40 km/h, visibility less than 0.8 km and temperatures below -12a/°C. On such occasions, most outdoor activities are severely curtailed. Even by itself, blowing snow is a major problem, occurring, for example, almost one-quarter of the time in midwinter in Keewatin. Fog is another transportation hazard, especially in late summer in the Arctic Islands where there is an abundance of water vapour at very low elevation. Aircraft movements are often hampered by such conditions. In midwinter, in some of the larger settlements such as Inuvik, ice fog is a common characteristic brought about by the freezing of warm, moist air from buildings and vehicle exhaust fumes.

2.3 The Water

2.3.1 General

The Arctic Ocean, Hudson Bay, Foxe Basin, Baffin Bay and the various straits and channels between the Arctic Islands constitute large, often deep, water bodies. These are frozen for much of and sometimes all the year and form pack ice several metres thick.

The Arctic Ocean is the largest water body. Most of its surface area is permanently frozen, and the pack ice moves slowly in clockwise direction. Open water develops only in late summer off the west coast of Banks Island and in the Beaufort Sea. M'Clure Strait, the western end of the North-West Passage, and the channels separating the more northerly of the Arctic Islands remain clogged with large semi-permanent ice floes. In the absence of icebreaking vessels, marine navigation in the Arctic Islands is largely confined to waters south and east of Barrow Strait and is restricted to a six- to eight-week period in August and September. There is a slightly longer shipping season in the Beaufort Sea and Amundsen Gulf areas of the western Arctic. Further south, Hudson Bay freezes completely by the end of December and does not begin to clear until June.

The marine areas of northern Canada possess a totally arctic climate. The summers are cool, with July temperatures usually less than 6a/°C. Fog, mist and clouds are common. Water temperatures are always near or just above freezing. They have a pronounced influence upon the climate of the adjacent land by cooling temperatures and spreading extensive cloud in summer. In winter, the frozen waters, especially the Arctic Ocean, serve as uniform *source areas* for exceptionally cold arctic air masses.

2.3.2 Sea ice

The ice found in the arctic waters of northern Canada can be divided into two categories: ice of land origin, which includes icebergs, and sea ice.

Icebergs, which are seen frequently in Baffin Bay, result from the break-up and disintegration of glaciers when they reach the sea. This process is known as *calving*. These glaciers originate from the Greenland and Ellesmere Island ice sheets. If icebergs drift toward the North Atlantic, they pose a threat to shipping. Ice islands are large individual pieces of tabular ice, often 10 to 60 m thick, which circulate in the central Arctic Ocean. These originate from the ice shelves off the northern coast of Ellesmere Island. In 1962-63, the Ward Hunt Ice Shelf lost 675 kmb/2 when five large ice islands broke off.

Sea ice originates when sea water freezes. Its distribution and thickness are characterized by extreme short- and long-term variability. The maximum limits of the polar pack ice are indicated in Figure 2-6. Sea ice develops in stages currently-forming new or young ice is less than 30 cm thick while first year ice is between 30 and 200 cm thick. Multi-year ice, representing ice floes which have persisted for more than one year, may exceed 200 cm in thickness. Coastal narrows and passages which occur in the path of current, tidal or wind-induced moving ice affect sea ice distribution significantly .

Polynyas, or areas of recurring open water, are *centres of sea ice removal*. One of the largest and best known is the *North Water*, which occupies an area of several thousand square kilometres each midwinter in northwestern Baffin Bay. Such areas dictated early prehistoric settlement patterns and, more recently, whale hunting grounds.

Sea ice moves in response to currents, tides and winds, and tensions and pressures may develop within the ice. Areas of open water develop where ice moves apart while pressure ridges, consisting of broken ice several tens of metres high, may form when large ice masses converge.

2.4 The Land

2.4.1 Physiographic regions

Northern Canada may be divided into five major geologically controlled physiographic regions, each of which may be further subdivided (Figure 2-4). The most extensive of these is the Canadian Shield, which occupies much of the mainland of the NWT, most of the central and eastern Arctic Islands south of Parry Channel and sectors of Devon and Ellesmere islands farther north. Igneous and metamorphic rocks, formed by intense heat and/or pressure, are widespread. The terrain is rocky and hilly, with numerous lakes. Structurally, the Shield consists of a series of broad arches and basins which once formed varied relief, but which have now been eroded to a more nearly level surface. In a few places, sedimentary rocks are preserved within broad shallow basins, such as Hudson Bay and Foxe Basin. For the most part, however, the Canadian Shield has eroded to a peneplane surface of great geological age and tectonic stability.

The Queen Elizabeth Islands form the Innuitian Province. Here, the sedimentary rocks gently dip or fold. Faulting has formed the various island groups. The broad through channel the North-West Passage known in its various parts as M'Clure Strait, Viscount Melville Sound, Barrow Strait and Lancaster Sound, lies along a major structural line. Many of the smaller channels between the islands also appear to be fault-controlled.

The islands of the Sverdrup Basin are underlain by vast thicknesses of sedimentary rock younger than those of the Canadian Shield. These layers give rise to low-lying terrain, usually less than 600 m in elevation. Elsewhere in the High Arctic, older and harder rocks form barren upland terrain rising to over 1000 m on western Melville Island and over 2000 m on Axel Heiberg and Ellesmere islands.

Flanking the Canadian Shield to the north and west are extensive areas of near-horizontal sedimentary rocks, mostly limestone, which form the Northern Platform Lowlands. These undulating plateau-like areas make up much of Victoria and Prince of Wales islands and extend southward to form the Mackenzie Lowlands to the east of Great Slave and Great Bear lakes.

The Arctic Coastal Plain is a low-lying zone adjacent to the Arctic Ocean and extends from Meighen Island through Prince Patrick and Banks islands to the Mackenzie Delta and the northern Yukon coast. It consists predominantly of sand, gravel and silt, often possessing high ice content, as in the Mackenzie Delta and parts of western Banks Island.

The final physiographic region, encompassing all of Yukon except the northern Yukon coastal plain, and including the Mackenzie Mountains of the NWT, is the Northwestern Cordillera. This is a region of extensive fold mountains together with intermontane plateaus and forms a complex geological structure.

In northern Yukon, the British Mountains rise to over 1500 m. They join the northern tip of the north-south trending Richardson Mountains which extend southward to link with the ranges of the Mackenzie Mountains. Much of northern and central Yukon consists of a series of intermontane plateaus and mountain ranges. Elevations in the Yukon and Porcupine plateaus rise to 1800 m, and peaks in the Ogilvie and Wernecke mountains exceed 2200 m. In the extreme southwest of Yukon, coastal mountain ranges from the majestic ice-capped St. Elias Mountains culminate in Mount Logan (6050 m), the highest elevation in Canada.

2.4.2 Hydrology

Numerous lakes and an intricate network of surface drainage characterize northern Canada. The Mackenzie River, the largest in Canada, drains northward from Great Slave Lake and flows toward the Arctic Ocean where the Mackenzie Delta constitutes a unique region of numerous channels and lakes just north of the tree line. Several large tributaries such as the Liard, Keele, Arctic Red and Peel rivers drain the eastern flanks of the Mackenzie Mountains and interior Yukon. Much of Yukon is drained by the headwaters of the Yukon River. Its larger tributaries draining the interior intermontane areas of Yukon are the Pelly and Stewart rivers. The Yukon River ultimately passes into Alaska, where it is joined by the Porcupine River, which drains the upper part of the interior of Yukon.

Generally, the runoff of the rivers and streams in northern Canada is controlled by snowmelt and summer rains. Other influences include ice cover breakup and ice jams. An additional factor for some large rivers — especially the Mackenzie and the Liard — is the fact that their upper reaches are in the south, where snowmelt and runoff occurs before downstream ice cover has broken up (Table 2-2). In the smaller streams between 25 and 75 per cent of total runoff may take place within a two-week period. The annual highest peak flows are usually produced by summer rains. On glacial-fed streams these flows result from a combination of glacial melt and rains. The prediction of the time of break-up and the magnitude of the annual flood is an important concern to settlements located along the major rivers in northern Canada.

The Mackenzie River is navigable throughout its length from Hay River on the south shore of Great Slave Lake to Tuktoyaktuk on the Beaufort Sea coast. The river system plays a vital role in the transportation of materials and the annual resupply of settlements in the western Arctic. During the navigation season, barges frequent the waterway. However, the season is relatively short since break-up starts in May just north of the Liard River junction and freeze-up starts in early October in the Mackenzie Delta (Table 2-2).

2.4.3 Glaciation

Nearly all of northern Canada has been glaciated at some time during the last two million years. Today, however, only five per cent of the Canadian North is covered by glaciers. With a few exceptions, these areas are located in either the highland northeastern rim of the Canadian Shield, on eastern Baffin and Ellesmere islands, or in the St. Elias Mountains of southwestern Yukon. There are two ice caps, the Barnes and Penny, on Baffin Island, and numerous glaciers extend to the sea, especially on Ellesmere Island. The Icefield Ranges of the St. Elias Mountains in Yukon are especially impressive.

There is widespread evidence of the existence of more extensive glaciation in the past. The deeply eroded valleys and fiords of Baffin Island provide striking examples of previously glaciated mountain terrain. By contrast, but equally revealing, much of the Canadian Shield and interior lowlands is mantled with a veneer of glacial till and coarse outwash or ice-contact deposits left by the retreating ice sheets. Even today, extensive areas of the NWT are experiencing isostatic rebound following earlier depression of the earth's crust beneath the tremendous weight of these ice sheets (Figure 2-5A). Raised beaches and marine sediments are widespread throughout parts of Keewatin and many of the central Arctic Islands and are often found at some distance from the coast (Figure 2-5B). Only the extreme northern and western Arctic Islands, together with parts of the Mackenzie Delta and interior northern Yukon, escaped glaciation during the last ice advance which culminated approximately 18,000 years ago (Figure 2-5C).

2.4.4 Permafrost

One consequence of the extended period of winter cold and the relatively short period of summer thaw is the formation of perennially frozen ground. The term *permafrost* describes the thermal condition of earth materials when their temperature remains below 0a/°C for a number of years. Above the permafrost is a surface layer of soil or rock (called the active layer) which thaws in summer and freezes in winter. In theory, the occurrence of permafrost has little relation to the presence of moisture in the ground. However, ice is an important component of permafrost in areas such as the Mackenzie Delta. The heaving of the ground or the melting of ice-rich permafrost are the most important geotechnical factors that are considered in engineering projects.

One-half of Canada's land surface, including most of Yukon and NWT, is underlain by permafrost (Figure 2-6). Permafrost is divided into two zones: continuous and discontinuous. In the continuous zone (usually those areas north of the tree line) permafrost exists everywhere beneath the land surface and varies in thickness from approximately 100 m at the southern limit to over 1000 m in the extreme north. In the discontinuous zone, some areas are free of permafrost. Table 2-3 gives representative permafrost thicknesses for a number of localities in Yukon and NWT.

Although most of Yukon falls into the discontinuous permafrost zone, permafrost is continuous in the extreme north, including the Eagle Plain, the Old Crow Basin and the northern Yukon coastal plain. Elsewhere, permafrost is widespread north of Dawson City but scattered and mostly restricted to north-facing slopes and poorly drained terrain in central Yukon. In southern Yukon, permafrost is most commonly associated with areas of organic materials which, because of their insulating qualities, inhibit the thawing of frozen ground.

Extensive areas of NWT lie within the continuous permafrost zone. In the Mackenzie Valley, the Mackenzie Delta and certain of the Arctic Islands, such as Banks Island, the permafrost is ice-rich and consists of thaw-sensitive, fine-grained sediments. By contrast, in parts of Keewatin and the eastern Arctic, permafrost occurs in coherent Shield rocks with low ice contents and with low thaw-sensitivity values.

In general, the southern limit of continuous permafrost in NWT coincides with the mean annual air temperature of -8.3a/°C, and the southern limit of discontinuous permafrost with -1.0a/°C. In the mountainous regions of the interior of Yukon, permafrost conditions vary with both elevation and aspect. Usually, permafrost consists of a continuous zone at high elevations and below that, a discontinuous zone down to the lower limit of permafrost.

Permafrost terrain produces a number of distinct landforms. The most widespread are tundra *polygons*, formed by the thermal contraction of the ground in winter under the intense cold. Ice wedges, sometimes several metres deep and up to 1.5 m wide near the surface, may form in the cracks. Other features are produced by the aggradation of ice within the frozen materials. *Pingos* for example, are ice-cored hills or mounds often conical in form. The Mackenzie Delta has the largest concentration of these features in the world (over 1400) some of which rise more than 30 m above the level of the surrounding tundra. Numerous other types of frost mounds occur in permafrost terrain. They are usually smaller than pingos and include *palsas*, which grow through ice segregation beneath organic material and occur mostly in the discontinuous permafrost zone.

Thermokarst describes the landforms produced by the melt of permafrost. Typically, this process follows from disturbance of the thermal equilibrium of the permafrost. Man-induced thermokarst may result from the removal or destruction of surface vegetation. Mass wasting processes manifested in several types of slope failure are also important in northern Canada, especially in permafrost areas.

Frost shattering of exposed bedrock is widespread and is thought to be the cause of *tors* coarse debris-mantled slopes and of *felsenmeer*, extensive areas of angular boulders and rock fragments. Such phenomena are particularly conspicuous in the unglaciated interior Yukon, where bedrock exposures are common, and in the polar desert regions of the High Arctic.

In practical terms, the importance of permafrost cannot be overemphasized since it influences virtually all aspects of life in those regions which it underlies. Referring specifically to Alaska and to experience in constructing the Alaska Highway during World War II, S.W. Muller of the US Army Corps of Engineers wrote in 1947, "The destructive action of permafrost phenomena has materially impeded the colonisation and development of extensive and potentially rich areas in the north. Roads, railroads, bridges, houses and factories have suffered deformation, at times beyond repair, because the condition of permafrost was not examined beforehand and because the behaviour of frozen ground was little if at all understood." While research in Canada in the last three decades has modified the last assertion, this general statement still holds true for much of northern Canada today. In recent years, exploration for natural resources such as minerals and oil and gas has extended into the permafrost regions in Canada.

Appreciation of permafrost conditions and the unique problems they present is essential if the environmental impact of such activities is to be minimized.

2.4.5 Vegetation

A close relationship exists betweeen the climatic and permafrost conditions in Yukon and NWT and northern vegetation. Some rough correlations between physical climate and biotic distribution are presented in Table 2-4.

The Canadian North is commonly divided into several major vegetation zones or *ecoregions* (Figure 2-7). The *Boreal Forest* refers to the extensive coniferous forests which extend northward toward the tree line. Black spruce is dominant, while white spruce and birch occur on better drained sites. In places, tamarack, poplar, alder and willow are present. Near the tree line, the Boreal Forest gives way to open woodland or Forest Tundra. The spruce become stunted, three to four metres in height, and shrub birch, blueberry, willow, Labrador tea and lichens become important. The tree line itself cannot be accurately defined; it is a zone in which trees gradually disappear. As such, the tree line may be as much as 100 km in width.

Forest fires are an important component of the boreal forest ecosystem. In northern Yukon, a tussock-hummock tundra often develops following fire; alternatively, white spruce invade to be followed later by black spruce.

North of the tree line, the arctic tundra can be subdivided into Low (Meadow) Tundra and High Tundra. In the Mackenzie Delta and northern Yukon, the Low Tundra consists of low shrub tundra on sloping terrain together with cottongrass, tussock heath tundra and wet sedge tundra in poorly drained areas. Northward, on Banks and Victoria islands and at higher elevations on the mainland, a transition to High Tundra begins. Compact, dwarf-like and hardy flowering species occur together with lichen-moss assemblages on exposed hillslopes and well drained localities, while sedge-moss tundra and herb-moss communities develop in the moister, more sheltered valleys.

In the extreme northern islands, there is a polar desert. Here, the vegetation cover is less than 10 per cent vascular plants and between 10 and 30 per cent moss-lichen-patina. Late-lying snowbanks, by providing moisture throughout much of the short summer, are often important controlling factors in plant growth.

Vegetation is closely associated with patterned-ground phenomena in northern regions. Hummocks one to three metres in diameter and one-half to one metre high are widespread throughout the boreal forest zone of the Mackenzie Valley and the interior of Yukon.

2.4.6 Wildlife

Of the many environmental features in Yukon and NWT none are held more important than wildlife. Generally, wildlife numbers are low in Yukon and NWT because of the short growing season and low levels of plant production.

The boreal forests are relatively low in wildlife production because areas of closed forest produce little vegetation of value to animals. The forests are populated by squirrels, marten, wolverine, mink, moose, woodland caribou and, in wet-lands, muskrat and waterfowl. There are trout, pike, whitefish and several other species of fish in the lakes. Since northern lakes are nutrient-poor and have cold temperatures, fish growth is slow. This is reflected by the restricted level of commercial fishing in Great Slave Lake. Rivers are often more productive. Barren-ground caribou overwinter in the open woodland and forest tundra where there is shelter from winds and abundant lichen and low shrub vegetation.

The tundra areas north of the tree line are also generally low in animal production. Exceptions are the Mackenzie Delta, the Old Crow Basin, Banks Island and the coastal waters of Baffin Island.

The Mackenzie Delta has thriving populations of muskrat in the delta lakes and channels, fish in the channels and waterfowl and beluga whale in the bays. This resource base largely supports the local peoples of Fort McPherson, Aklavik, Tuktoyaktuk and Arctic Red River.

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Table 2-1A

Mean monthly and annual temperatures (a/°C) at selected weather stations

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year
YUKON													
Dawson	-28.6	-23.0	-14.1	-1.8	7.8	13.9	15.5	12.7	6.4	-3.2	-16.5	-25.3	-4.7
Snag	-28.2	-22.3	-13.9	-2.8	6.6	11.9	13.9	11.2	5.2	-5.3	-18.8	-27.3	-5.8
Watson Lake	-25.3	-18.3	-10.5	-0.6	7.4	13.2	14.9	13.0	7.8	0.1	-13.6	-22.6	-2.9
Whitehorse	-18.9	-13.2	-7.7	-0.1	7.1	12.4	14.1	12.3	7.8	0.7	-9.0	-15.8	-0.8
NWT													
Aklavik	-28.6	-27.4	-22.3	-12.7	-0.4	9.6	13.8	10.8	3.6	-7.1	-19.5	-27.3	-8.9
Alert	-32.1	-33.3	-33.0	-24.7	-11.2	-0.6	3.9	0.9	-10.1	-19.7	-26.1	-29.8	-18.0
Arctic Bay	-29.8	-31.1	-27.7	-19.8	-7.6	2.1	5.8	4.8	-1.6	-11.1	-21.1	-26.8	-13.7
Baker Lake	-33.6	-32.8	-27.0	-17.6	-7.2	3.2	10.7	9.8	2.4	-7.5	-20.2	-27.5	-12.3
Cambridge Bay	-33.7	-34.6	-30.1	-22.2	-9.6	1.5	8.2	6.9	-0.5	-11.1	-23.8	-29.6	-14.9
Chesterfield	-31.8	-31.9	-25.7	-16.8	-6.8	2.4	8.7	8.3	2.6	-5.2	-16.9	-25.7	-11.6
Clyde	-26.9	-27.4	-26.3	-18.7	-6.9	0.9	4.6	4.0	-0.1	-6.6	-16.9	-24.2	-12.1
Coppermine	-29.4	-30.9	-26.1	-17.7	-5.7	3.5	9.3	8.6	2.3	-6.3	-19.5	-25.7	-11.4
Coral Harbour	-30.4	-29.5	-24.5	-16.4	-6.5	2.0	8.6	7.5	1.0	-7.7	-17.1	-24.5	-11.4
Eureka	-36.6	-37.7	-36.7	-27.6	-10.1	2.3	5.5	3.6	-7.7	-21.8	-30.7	-34.8	-19.3
Fort Reliance	-30.1	-27.5	-21.8	-10.2	0.9	8.7	13.3	12.8	6.2	-2.0	-14.1	-23.7	-7.3
Fort Simpson	-26.0	-23.3	-15.0	-3.8	7.8	14.3	16.8	14.6	7.7	-1.2	-14.2	-23.8	-3.8
Fort Smith	-26.9	-22.6	-14.6	-3.2	7.1	13.1	16.1	14.3	7.7	0.5	-11.8	-21.4	-3.5
Frobisher Bay	-26.2	-25.2	-22.3	-14.0	-3.3	3.5	7.9	6.9	2.4	-4.7	-12.4	-20.3	-8.9
Hall Beach	-31.7	-31.6	-28.3	-20.0	-8.8	0.3	5.4	4.9	-0.6	-10.2	-20.9	-26.9	-14.0
Isachsen	-35.1	-36.4	-34.3	-25.6	-11.7	-0.8	3.3	1.1	-8.8	-19.4	-28.2	-32.5	-19.1
Mould Bay	-33.8	-35.6	-32.4	-23.6	-10.9	-0.3	3.7	1.7	-6.6	-17.8	-25.6	-31.3	-17.8
Norman Wells	-28.7	-25.6	-18.9	-7.4	5.1	13.7	16.1	13.2	5.8	-4.1	-18.1	-25.9	-6.3
Nottingham Island	-24.5	-24.3	-20.2	-12.8	-4.2	1.6	5.9	5.7	1.5	-3.4	-10.2	-18.1	-8.6
Resolute	-32.6	-33.5	-31.1	-23.1	-10.7	-0.3	4.3	2.7	-4.9	-14.7	-24.2	-28.8	-16.4
Sachs Harbour	-29.7	-30.9	-27.3	-19.2	-7.3	2.2	5.6	4.3	-1.8	-11.6	-21.7	-26.7	-13.7
Yellowknife	-28.6	-25.7	-18.6	-7.8	4.0	12.2	16.0	14.1	6.8	-1.2	-14.2	-23.8	-5.6

Table 2-1B

Mean monthly and annual precipitation (mm) at selected weather stations

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year
YUKON													
Dawson	19.3	16.0	12.7	9.1	21.8	36.8	53.1	50.6	28.5	26.7	25.2	25.7	325.5
Snag	21.1	17.0	15.8	15.0	30.5	55.4	69.9	44.5	28.5	20.1	21.1	21.1	360.0
Watson Lake	35.1	28.2	23.9	18.3	23.1	48.8	53.1	44.7	43.2	34.8	37.9	41.2	432.3
Whitehorse	18.5	14.0	14.7	10.7	13.5	28.7	33.3	36.1	29.0	19.8	22.4	19.6	260.3
NWT													
Aklavik	11.9	10.7	11.2	8.1	8.1	18.3	33.8	36.1	20.1	32.3	21.1	24.4	236.1
Alert	7.6	5.3	7.1	6.6	10.7	13.5	18.0	27.4	27.9	15.8	8.1	8.1	156.1
Arctic Bay	5.8	4.3	5.6	4.1	6.6	7.6	19.3	24.1	21.6	15.2	6.9	4.6	125.7
Baker Lake	7.1	5.6	9.7	13.0	9.4	16.0	35.6	34.5	33.8	25.9	16.3	6.1	213.0
Cambridge Bay	5.3	4.1	5.6	5.8	7.9	13.5	22.1	26.2	16.3	15.8	8.9	5.6	137.1
Chesterfield	7.6	5.1	10.2	13.0	15.8	25.9	41.4	37.3	40.4	31.5	20.8	14.5	263.5
Clyde	10.9	6.6	5.1	8.4	14.0	10.7	23.4	30.2	38.6	32.5	18.3	7.6	206.3
Coppermine	10.4	5.8	11.2	10.4	11.2	16.8	33.5	39.9	27.2	25.2	14.5	10.2	216.3
Coral Harbour	8.6	10.2	11.7	14.7	17.5	26.4	40.4	43.9	34.5	30.0	17.8	11.4	267.1
Eureka	2.8	2.3	1.5	2.0	2.8	3.8	13.0	9.1	10.2	6.1	2.8	2.0	58.4
Fort Reliance	12.5	9.4	8.4	9.9	10.9	23.9	33.5	30.2	30.0	26.7	20.3	14.0	229.7
Fort Simpson	20.8	14.5	18.5	21.6	20.8	43.7	49.8	46.7	40.4	26.2	23.4	19.1	345.5
Fort Smith	17.5	15.5	14.5	17.5	24.6	33.8	52.8	37.9	37.6	28.7	27.7	23.1	331.2
Frobisher Bay	24.4	27.9	20.6	22.4	22.9	37.9	53.1	57.9	43.4	41.7	36.8	26.2	415.2
Hall Beach	9.1	9.9	8.9	9.7	16.0	12.2	28.7	31.8	18.0	22.6	15.5	9.9	192.3
Isachsen	2.3	2.3	2.3	3.8	9.1	7.6	21.1	21.8	15.5	9.9	4.3	2.3	102.3
Mould Bay	2.3	2.0	2.5	2.5	6.9	6.1	16.8	20.3	12.7	8.4	2.8	3.1	86.4
Norman Wells	20.8	17.3	12.5	14.2	15.2	36.6	56.1	61.7	33.8	25.2	21.8	19.3	334.5
Nottingham Island	12.5	11.7	9.9	14.5	16.5	21.6	31.2	35.8	37.1	33.5	29.2	16.3	269.8
Resolute	2.8	3.3	3.1	5.8	8.6	12.5	26.4	30.5	17.8	15.2	5.6	4.8	136.4
Sachs Harbour	2.3	2.3	2.5	2.5	7.4	7.9	18.3	22.1	13.5	13.5	6.4	3.8	102.5
Yellowknife	13.7	12.2	11.7	10.2	14.0	17.3	33.3	36.3	28.2	30.7	23.9	18.5	250.0

Table 2-2

Mean freeze-up and break-up dates, Mackenzie River, 1946-1955

Location	Distance from Great Slave Lake (km)	Freeze-up	Break-up
Fort Providence	80	Nov. 24	May 18
Fort Simpson:			
— Mackenzie above Fort Simpson	335	Nov. 27	May 15
— Mackenzie below Fort Simpson	351		May 11
Fort Norman	825	Nov. 15	May 14
Norman Wells	909	Nov. 10	May 15
Fort Good Hope:			
— Ramparts	1094	Nov. 5 *	May 22
— Settlement	1101	Nov. 12	May 15
Arctic Red River Settlement:			
— Arctic Red River	1445	Oct. 8	May 25
— Mackenzie River	1445	Nov. 1	May 24
Lang Trading Post	1561	Oct. 9 **	May 26
Aklavik	1607	Oct. 9 **	May 28
Reindeer Station	1615	Oct. 18 *	May 27

* Seven years of record
** Nine years of record

Table 2-3

Representative thicknesses and permafrost temperatures in Yukon and the NWT

Location	Thickness of permafrost (m)	Ground surface temperature (a/oC)	Mean annual air temperature (a/oC)
Yukon:			
Dawson City	60	-2.0	-4.7
Eagle River bridge, Dempster Highway	90	-2.5	n/a
United Keno Hill Mines Ltd.	135	-1.5	-4.0 (Elsa)
NWT:			
Fort Simpson	0-15	n/a	-3.8
Yellowknife	60	-2.0	-5.5
Norman Wells	45-76	-2.5	-6.5
Inuvik	360	-4.0	-9.7
Rankin Inlet	350	-7.0	-11.6*
Storkerson Bay A-15 wellsite, Banks Island	430	-12.0	-13.7**
Resolute Bay	400-600	-13.0	-16.4

* Chesterfield Inlet
** Sachs Harbour

Table 2-4

Some values typical of northern vegetation zones and boundaries

Zone	Climatic values			
	A	B	C	D
Tundra Zone: Tundra, Queen Elizabeth Islands	5	1	5-10	75
Tundra, southern areas	10	2	10-15	90-120
Arctic tree line	10-13		15-20	120-145
Boreal Zone: Forest tundra and woodland	13-15	3-5	20-25	150-170
Northern forest line	15		30	168-175
Boreal forest	15-18		30-35	180-210
Southern boreal limit	16-18	5-10	34-40	200-225

Key to Columns:
A: Mean daily temperature, degrees C, July
B: Net annual production of plant material (tonnes/hectare/year)
C: Annual net radiation (kilolangleys per year) mean value
D: Duration of thaw season in days (temperature exceeds 0a/oC)

Figure 2-1A:
Duration of Daylight Through Year
as a Function of Latitude

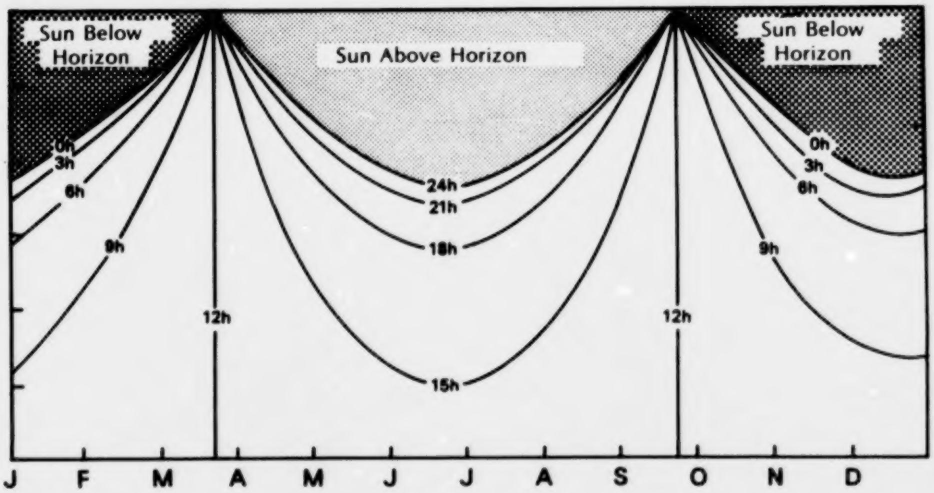


Figure 2-2A:
Mean Daily Temperatures in Northern Canada, January,
Degrees Celsius

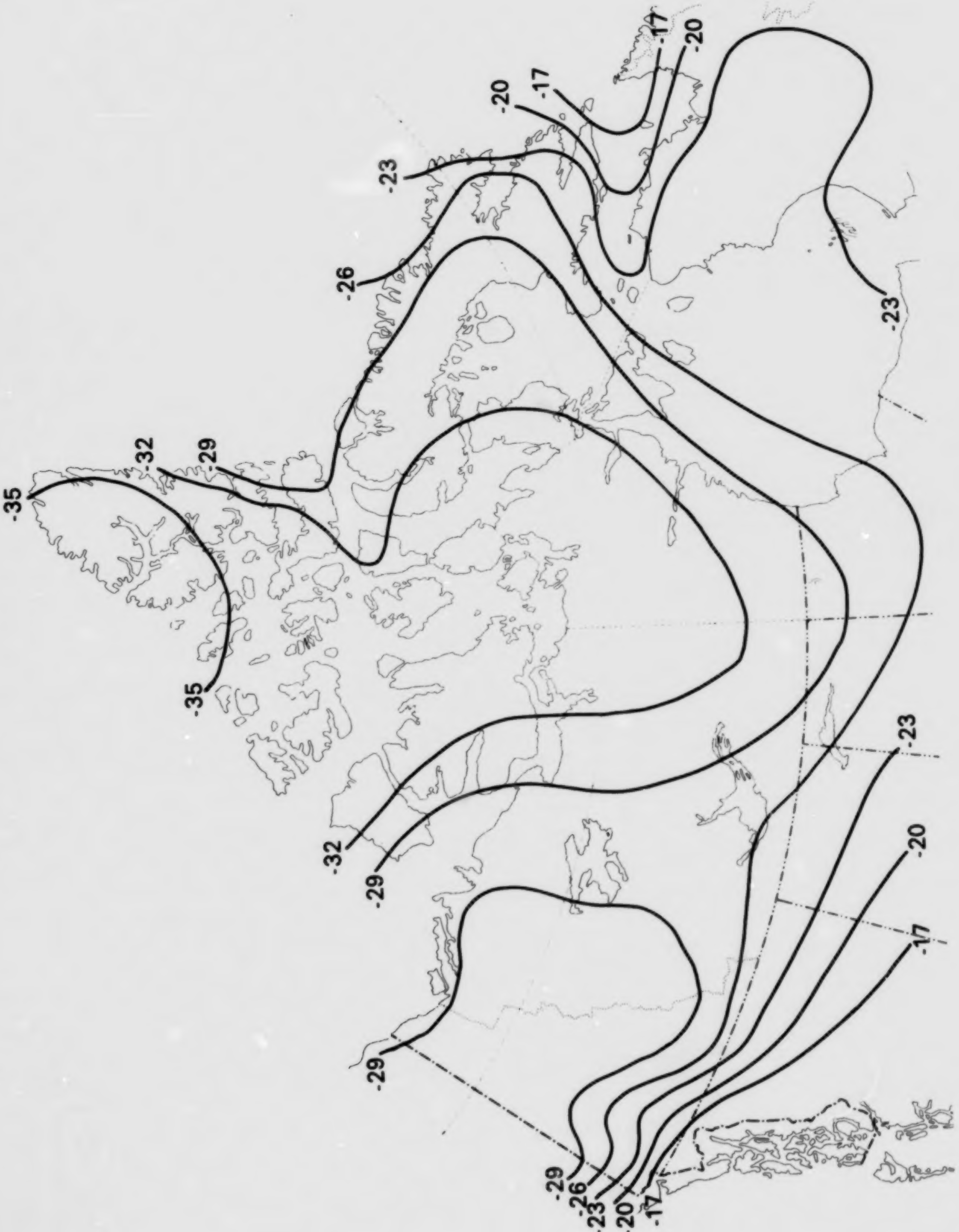

-35
-32
-29
-35
-26
-23
-20
-17
-17
-20
-23
-32
-29
-29
-23
-20
-17
-29
-26
-23
-20
-17

Figure 2-2B:
Mean Daily Temperatures in Northern Canada, July,
Degrees Celsius

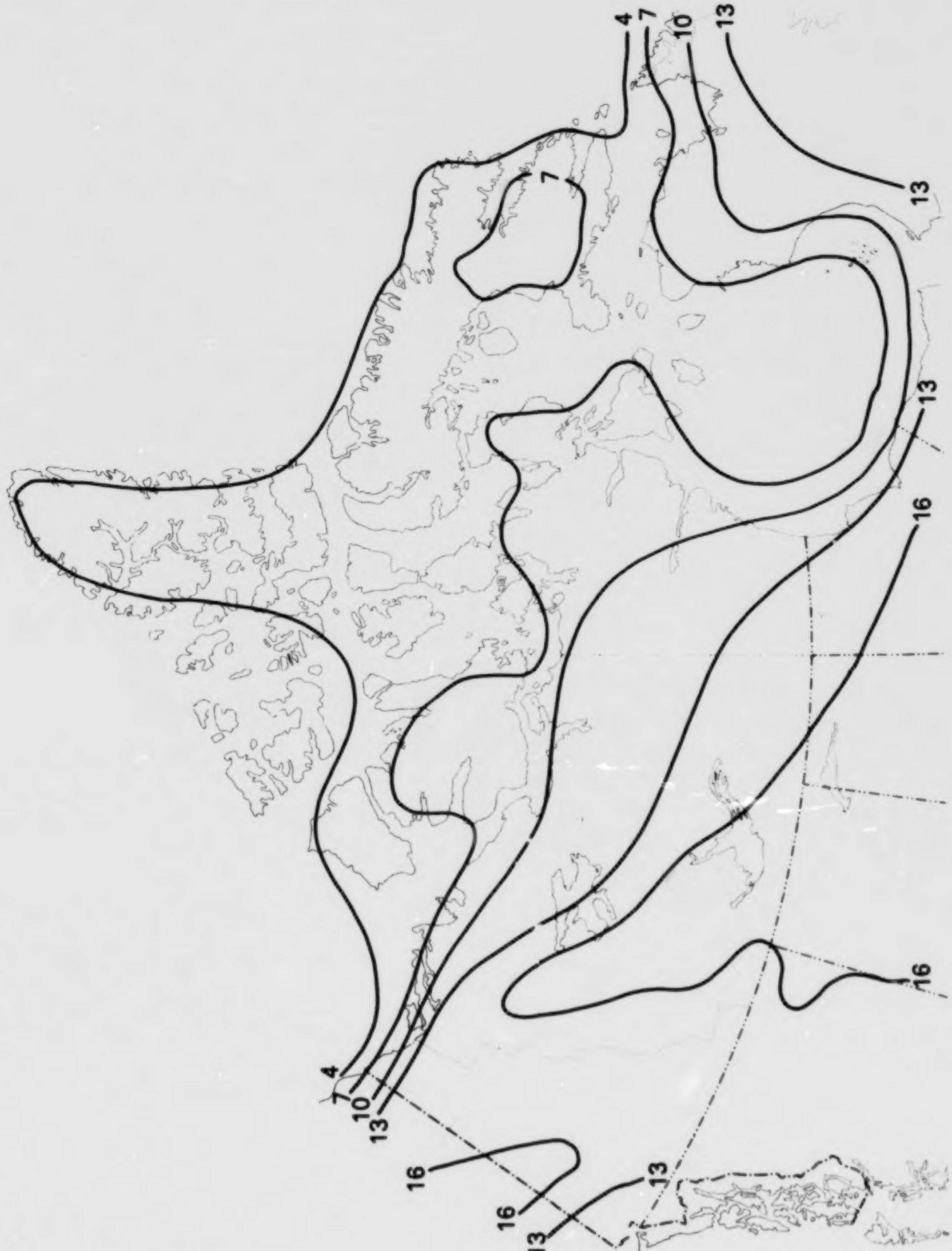

4
7
10
13
13
7
13
16
16
4
7
10
13
16
16
13
13

Figure 2-3:
Temperature/Wind Chill Index
Wind Speed (Km/h)

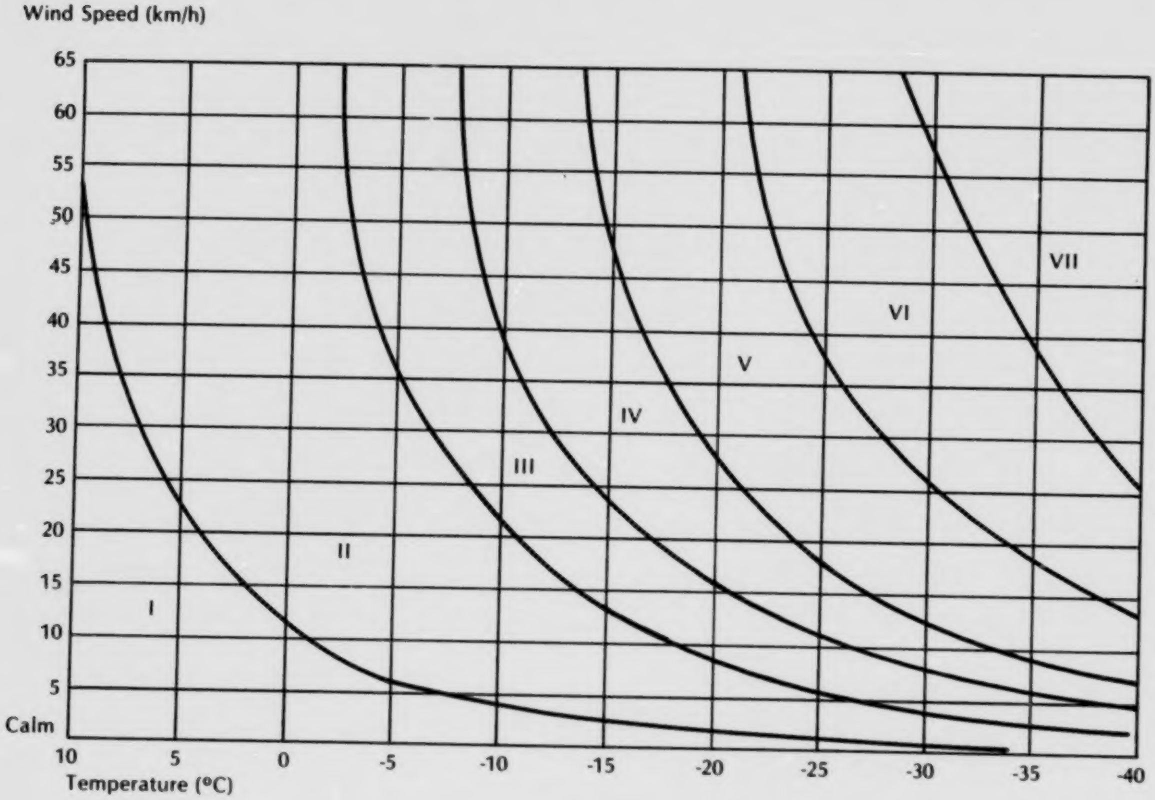
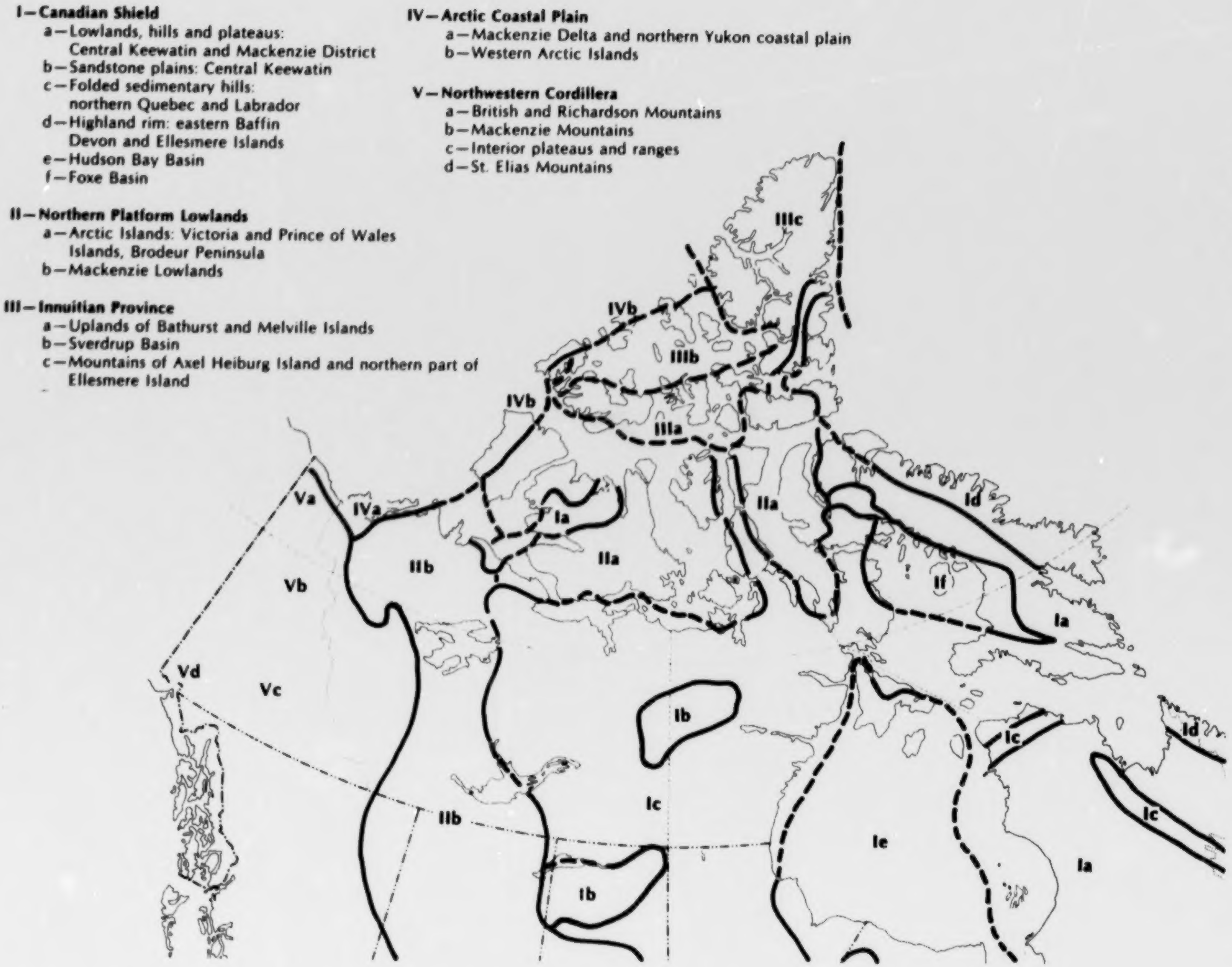


Figure 2-4:
Physiographic Regions of Northern Canada



I—Canadian Shield
- a—Lowlands, hills and plateaus: Central Keewatin and Mackenzie District
- b—Sandstone plains: Central Keewatin
- c—Folded sedimentary hills: northern Quebec and Labrador
- d—Highland rim: eastern Baffin Devon and Ellesmere Islands
- e—Hudson Bay Basin
- f—Foxe Basin

II—Northern Platform Lowlands
- a—Arctic Islands: Victoria and Prince of Wales Islands, Brodeur Peninsula
- b—Mackenzie Lowlands

III—Innuitian Province
- a—Uplands of Bathurst and Melville Islands
- b—Sverdrup Basin
- c—Mountains of Axel Heiburg Island and northern part of Ellesmere Island

IV—Arctic Coastal Plain
- a—Mackenzie Delta and northern Yukon coastal plain
- b—Western Arctic Islands

V—Northwestern Cordillera
- a—British and Richardson Mountains
- b—Mackenzie Mountains
- c—Interior plateaus and ranges
- d—St. Elias Mountains

Figure 2-5A:
Maximum Post Glacial Marine Limit

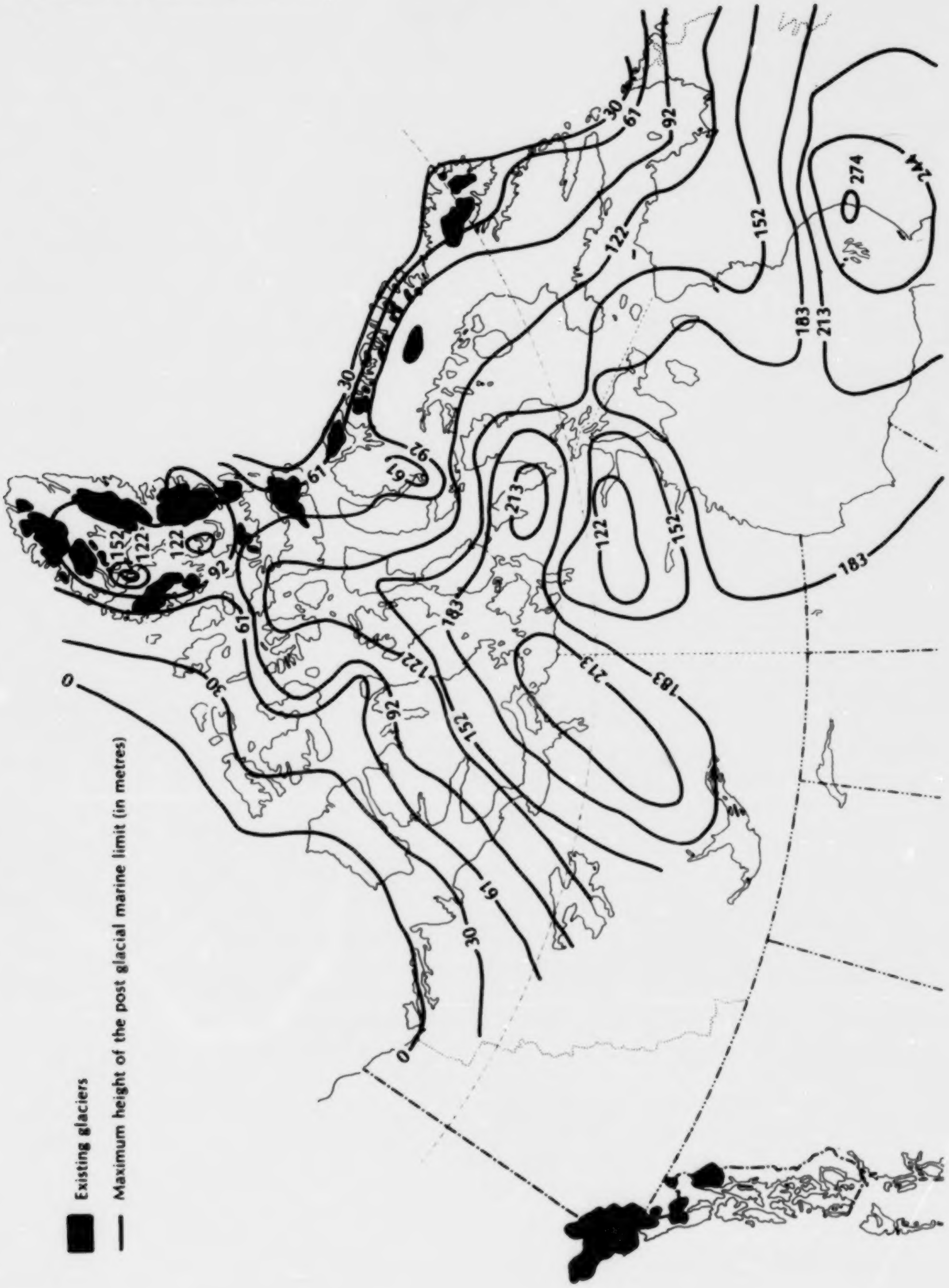

■ Existing glaciers
— Maximum height of the post glacial marine limit (in metres)
0
30
61
92
122
152
183
213
244
274

Figure 2-5B:
Maximum Post Glacial Rebound

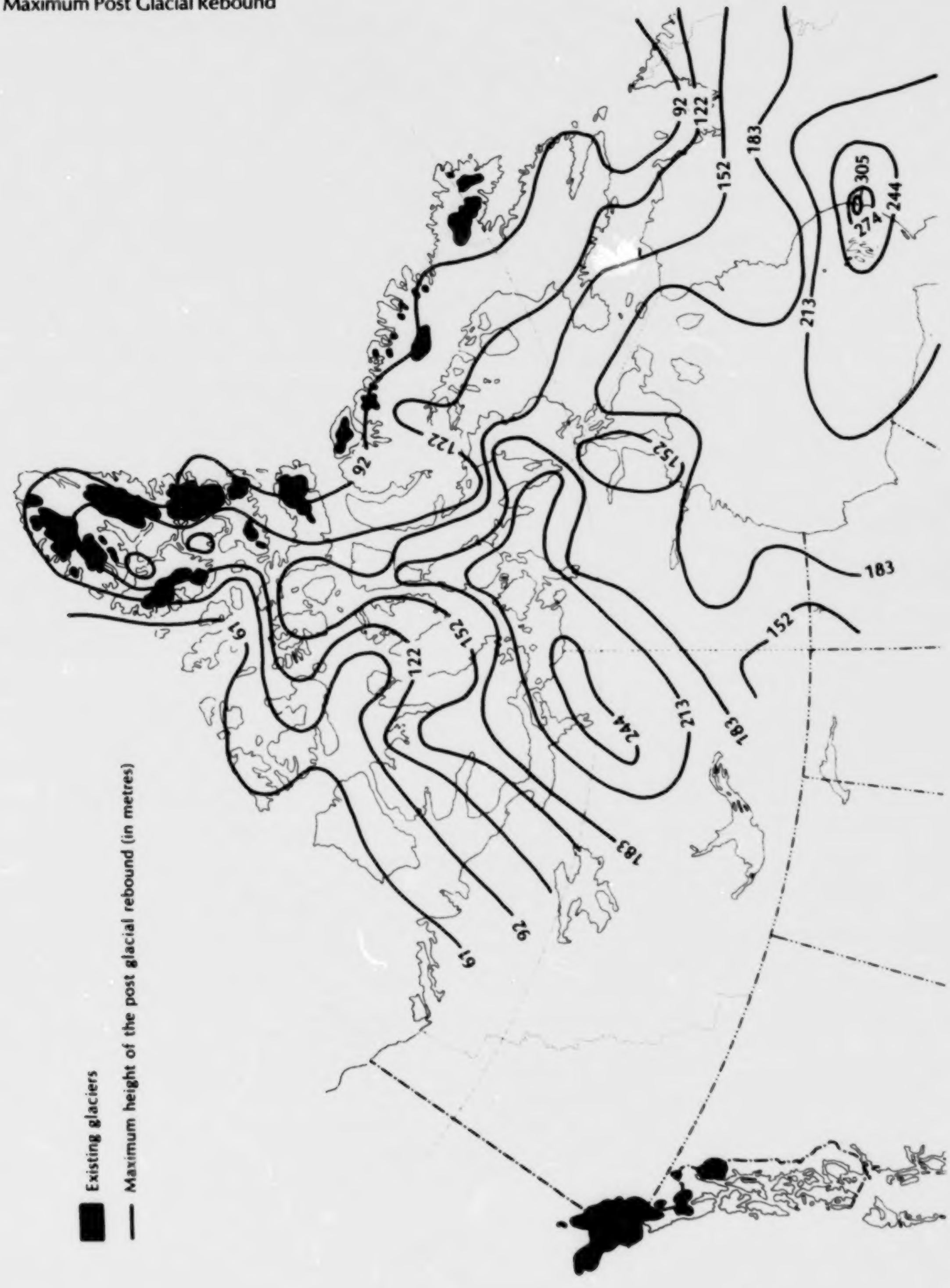

Existing glaciers
Maximum height of the post glacial rebound (in metres)
92
122
152
183
213
305
274
244
92
122
152
152
183
152
61
122
152
213
244
183
183
92
61

Figure 2-5C:
Stages in the Last Delaciation of Northern Canada

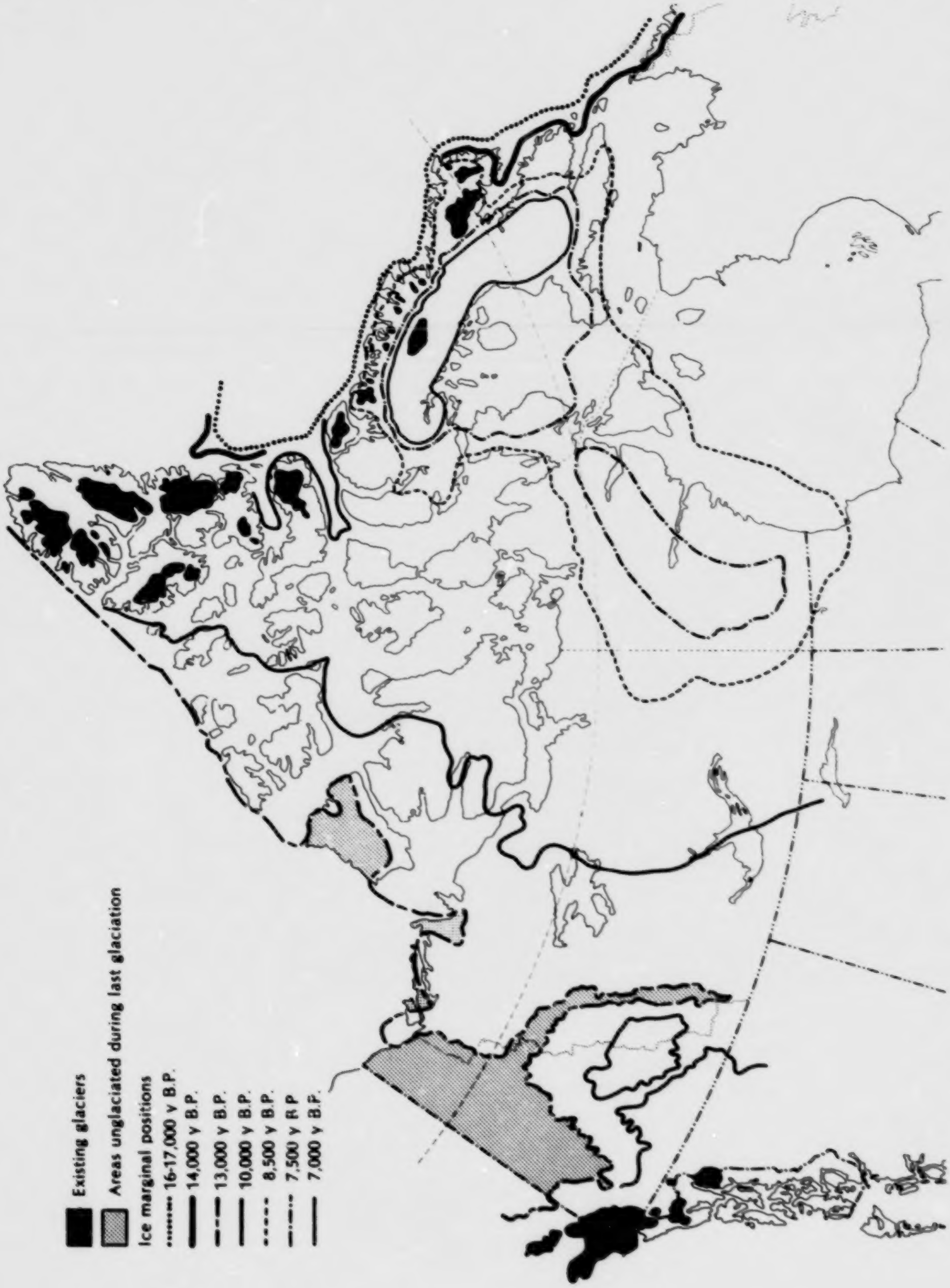

Existing glaciers
Areas unglaciated during last glaciation
Ice marginal positions
16-17,000 y B.P.
14,000 y B.P.
13,000 y B.P.
10,000 y B.P.
8,500 y B.P.
7,500 y B.P.
7,000 y B.P.

Figure 2-6:
Permafrost Distribution in Northern Canada Showing Relationship with Vegetation and Extent of Sea Ice Cover in Canadian Arctic Waters

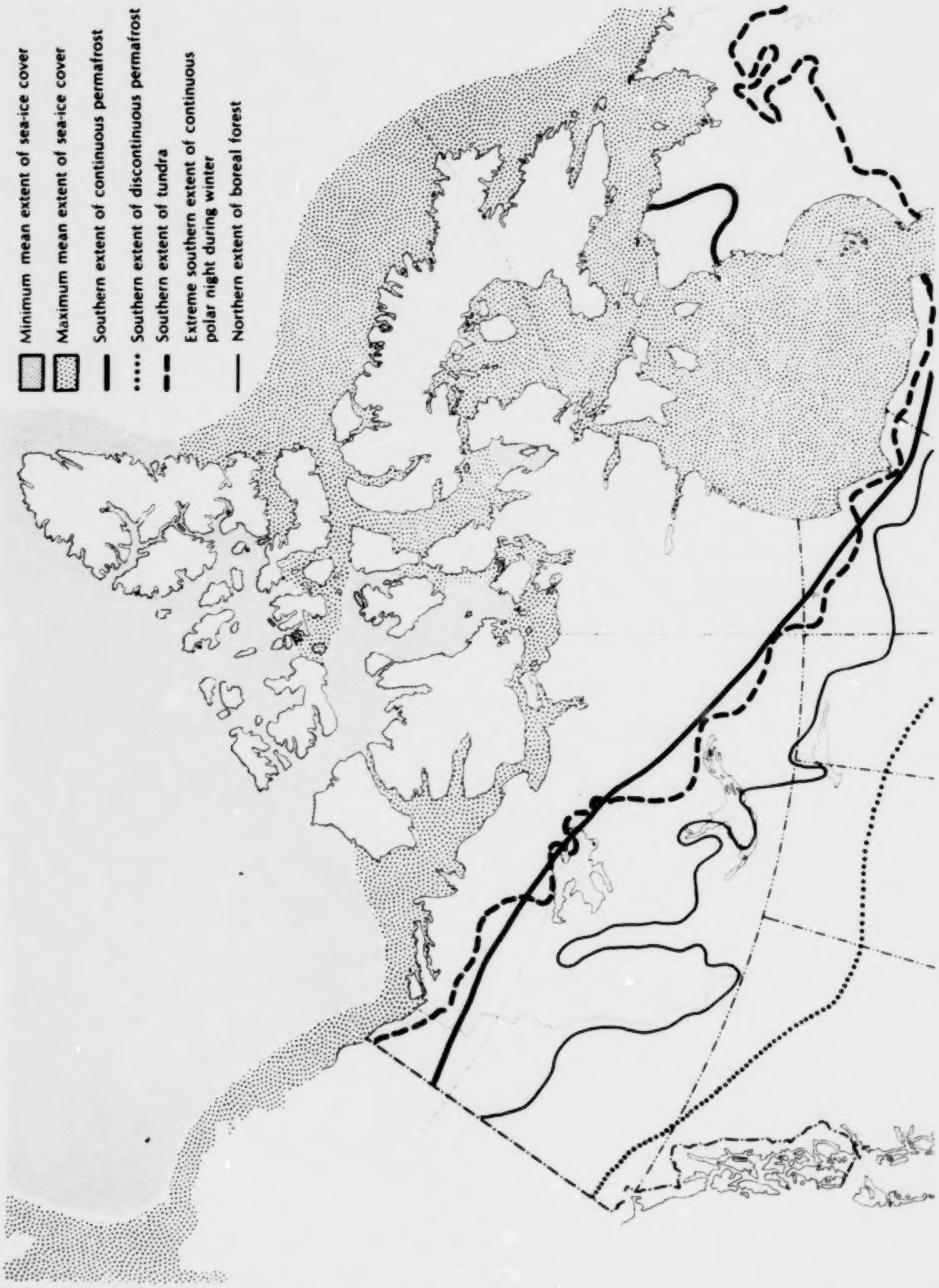
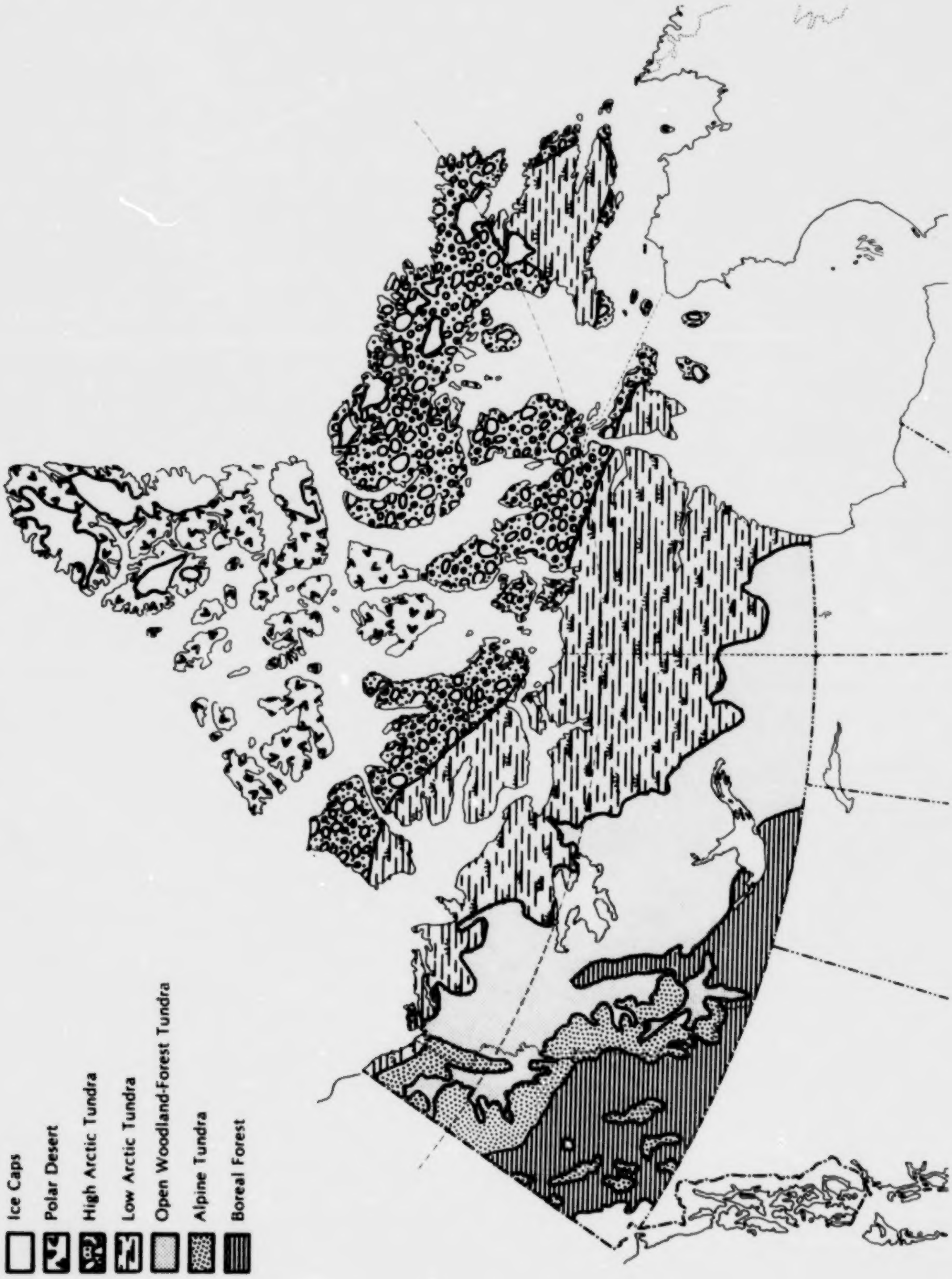

▨ Minimum mean extent of sea-ice cover
▨ Maximum mean extent of sea-ice cover
Southern extent of continuous permafrost
Southern extent of discontinuous permafrost
Southern extent of tundra
Extreme southern extent of continuous polar night during winter
Northern extent of boreal forest

Figure 2-7:
Major Vegetation Zones in Northern Canada


Ice Caps
Polar Desert
High Arctic Tundra
Low Arctic Tundra
Open Woodland-Forest Tundra
Alpine Tundra
Boreal Forest

3.0 People

3.1 Northern Settlements

Statistics Canada estimates placed the 1986 population of NWT at 50,900 and Yukon at 22,700. In NWT, about 20 per cent of the population live in Yellowknife, the capital city. Around 27 per cent of the population is distributed among the towns of Frobisher, Fort Smith, Hay River, Inuvik and Pine Point. Two per cent of the population lives in villages, 26 per cent in hamlets and about 22 per cent in settlements. A small number (less than 1 per cent of the territorial population) lives in so-called "unorganized" communities.

In Yukon, about three-quarters of the population live in communities located on the Alaska Highway. Approximately 66 per cent of the population lives in or near the capital city of Whitehorse. Around 18 per cent is distributed among the towns of Faro, Watson Lake and Dawson City. The rest of the population lives in villages, municipal districts or unorganized communities.

3.1.1 Northwest Territories

To attain city status, a NWT community must have more than 6,000 inhabitants; towns need a population of at least 1,000. Both cities and towns are required to have a taxable land assessment equivalent to $2,500 per capita. They elect a mayor and eight council members and are responsible for setting their own municipal budgets and raising revenues through local tax assessments, sales of licences, payments of fines and fees and sales of debentures. Villages have populations of at least 500 residents and are responsible for setting their own budgets in consultation with the territorial government; revenue sources are exactly the same as cities and towns but, given the smaller tax base, a larger proportion of the operating budget is derived from grants (in lieu of taxes paid on government property), capital construction grants, repayable loans, per capita grants and various subsidies to ensure maintenance of sanitation and other standards.

Hamlets are incorporated following petition from community members and assume many of the duties and responsibilities of villages, though with a greater degree of guidance provided in the initial years by the territorial government. Settlements also elect councils, but these are advisory in nature and have no legal powers. The opinions of the settlement council are brought to the notice of the requisite government department which may or may not act accordingly. Settlements qualify for per capita grants up to a maximum of $12,000 per annum and have the power to use the funds on community projects as they see fit.

The smallest settlements, with no externally accountable political or municipal structure, are the "outpost camps" (which number about twelve) all operating in the eastern Arctic. They receive small incentive grants and transportation and fuel subsidies but achieve a high degree of self-sufficiency in terms of maintaining small, viable communities. There are no schools, health or other government services provided at the settlement locations, though visits from government agencies and departments may take place irregularly a few times a year.

There are several small-sized communities (usually with fewer than 100 residents) which have variable levels of infrastructure provided. For example, Colville Lake, NWT, with a population of about 57, is a small Dene community without electricity, telephones, nursing station, school or government personnel. Jean Marie River, NWT, another small Dene community, has a school and enjoys electric power and television reception. Grise Fiord, NWT, an Inuit community with about 106 residents, has a resident nurse, a school, an RCMP detachment and telephone service as well as television.

Settlements and hamlets with populations of over 150 residents generally have retail outlets, health, education and social services, and are usually served by air carriers licensed to provide point-to-point service. Most have TV, radio and postal services and many have telephones. All communities provide religious services to their residents.

3.1.2 Yukon

In Yukon, communities are classed as cities, towns, villages or unorganized communities. To attain city status, a community must have more than 2,500 people or a taxable land assessment of $10 million. Towns need a population between 500 and 2,500 or a taxable land assessment of $2 million, while villages or municipal districts have populations of at least 300 or a taxable land assessment of $1 million. All communities elect a mayor and council. Six alderpersons are elected in cities, while four are elected in towns, villages and municipal districts. The elected councils exercise responsibilities similar to those in other Canadian comnunities.

Communities with populations in the 350 (e.g., Teslin) to 1000 range (e.g., Watson Lake) generally enjoy good education, health and recreational facilities which include nursing stations, indoor skating and curling rinks and sometimes swimming pools and libraries.

Remaining communities within Yukon currently fall under the unorganized class and include settlements with fewer than 300 residents. These settlements may be predominantly non-native (e.g., Destruction Bay), predominantly native, (e.g., Burwash Landing) or have approximately equal numbers of Indian and non-Indian residents (e.g., Ross River). Depending largely on size, such communities may have a nursing station, an elementary school, limited recreational facilities, limited retail services but quite often telephone, radio and TV connections.

In Yukon, there are also communities which have the status of company towns, where the population depends upon the employment and municipal facilities provided by a mining company.

3.2 Population Characteristics

The northern population is a young one: about one-quarter of the people in NWT are of school age (5 to 14 years), with about half that number in the preschool group (0 to 4 years). In Yukon, about one-sixth of the population is school age and about half that number falls in the preschool group. There is a small number (less than 3 per cent of the population) 65 years of age or older in both territories. Hence, some 60 per cent of NWT's population is potentially in the workforce.

The birth rate of all groups in both territories is now falling and will probably be quite similar to the all-Canada rate before long. For example, there was about a 13 per cent decrease in the number of births recorded in NWT in 1981, compared to the preceding year.

In terms of migration, about 1,700 people moved to NWT from elsewhere in Canada in 1981 an increase of about 30 per cent over the preceding year's immigration. In Yukon, 2,767 people moved to this territory from elsewhere in Canada. This represented a 15 per cent increase over the 1980 total. Only about 290 people left NWT during 1981, an outmigration about 10 per cent less than that recorded in 1980, while 2,623 left Yukon resulting in a net migration of 144. This was a great improvement over 1980 when net migration equalled -643. It is obvious that year-to-year variations in migration are great. This is due largely to pulses in economic activity both in the North and elsewhere in the country. On the whole, however, it appears that Yukon is non-native. Many of these residents' stay in Yukon is dependent on the level of economic activity in the territory.

Health statistics in the North have shown some dramatic shifts over the past 25 years. In the late 1940s, the death rate from tuberculosis was more than 700 per 100,000 (compared to about 50 per 100,000 for all Canada), but it has declined as a major public health problem in the past 20 years or so. However, at a continuing rate of about 100 per 100,000, it remains higher than elsewhere in Canada. At the same time, many viral infections have also lost their deadly impact due to acquired immunity. The dramatic decline in TB infection has been offset by a very sharp increase in gonorrhea, from near the all-Canada rate (150 per 100,000) to a rate in excess of 6,000 per 100,000 by the late 1970s. There is also a host of diseases associated with changing diet and lifestyle. These diseases were unknown or very rare 25 years ago but have had progressively increasing incidence rates during more recent years. Health problems today include gallstones, diabetes, obesity, dental disease, cardiovascular diseases, various cancers and, particularly in the young, myopia and other eye disorders.

The leading causes of death today in Yukon and NWT are accidents (often alcohol-related) and suicides.

3.3 Ethnicity

Native people form the majority of the population in NWT. Inuit constitute about 34.6 per cent of the total, Dene about 22.8 per cent and non-natives about 42.6 per cent.

In Yukon, the Indian population numbers some 4,000, or about 18 per cent of the territorial population of 22,700.

The Inuit population in NWT is distributed among the coastal communities in the eastern Arctic, along the west coast of Hudson Bay and Foxe Basin and westward across the mainland to Aklavik on the west side of the Mackenzie Delta. There is only one Inuit community (Baker Lake) situated a significant distance from the sea. The NWT Dene communities are all in the western subarctic areas from the southern boundary of NWT, around the shores of Great Slave Lake and northward along the Mackenzie River Valley to the Mackenzie Delta. The population of the delta community of Aklavik is made up of 52 per cent Inuit, 26 per cent Dene, 11 per cent Metis and 11 per cent other, while Inuvik, on the eastern side of the delta, has a population made up of about 21 per cent Inuit, 10 per cent Dene, 5 per cent Metis and 64 per cent other.

Some of the Dene communities have large numbers of Metis residents. One of these communities, Fort Resolution, has 60 per cent Dene, 18 per cent Metis and 22 per cent other. Fort Smith has 27 per cent Metis, 18 per cent Dene/Cree, 2 per cent Inuit and 53 per cent other.

Most NWT communities with non-native people forming a majority of the population are in the Mackenzie District: the mining communities of Port Radium and Pine Point; the transportation and service centres of Hay River and Enterprise; the government centres of Fort Smith, Inuvik and Yellowknife and the oil production centre of Norman Wells.

Most of the approximately 4,000 status and non-status Indians in Yukon live on Crown land. About 150 live on reserves, and some live in the larger urban centres. The most sizeable Indian communities in Yukon live in Whitehorse, Dawson, Old Crow, Mayo, Carmacks and Burwash Landing. However, there are Indian residents in almost every Yukon community, with communities such as Pelly Crossing, Old Crow, Burwash Landing and Upper Liard being predominantly Indian communities, whereas Faro, Beaver Creek and Watson Lake are predominantly non-native communities. In several Yukon communities, Indian and non-Indian residents are roughly equal in numbers (e.g., Teslin, Ross River and Carcross).

3.4 Languages

Language was once the basis for ascribing ethnic affiliation. However, since the advent of schools (first church-operated and subsequently government-operated) loss of mother tongue has been a significant concomitant of formal schooling, particularly in the western Arctic, where schools have operated for the longest period of time.

Initially, the native people of NWT and Yukon spoke languages belonging to two main language families: Athapaskan and Inupik. The Dene of the subarctic forests were affiliated with the Athapaskan linguistic family and the Inuit of the arctic and subarctic tundra coastal regions with the Inupik linguistic family.

The languages which are most likely to survive for some time to come include the principal dialects of the Inuit language (*Inuktitut*) spoken in the Baffin Region, Keewatin and central Arctic, as well as in Arctic Quebec and on the Belcher Islands. Among the Dene in the Mackenzie District and Yukon, *Chipewyan, Slavey* and *Dogrib* are distinct dialects, and each of these appears likely to survive for some time yet. Chipewyan is spoken widely across northern Saskatchewan and northern Manitoba, and in NWT it is the predominant Indian language at Fort Resolution, Fort Smith and Snowdrift. Slavey is spoken in northern Alberta and in NWT, principally in the communities of Fort Liard, Fort Norman, Fort Providence, Fort Simpson and Wrigley. Dogrib is spoken in the communities situated between the northern shore of Great Slave Lake and the southern shore of Great Bear Lake (e.g., in the Yellowknife area, Rae Lake and Snare Lake). *Hare* believed to be a dialect of Slavey, is spoken principally in the communities of Fort Good Hope and Fort Franklin. *Loucheux* is spoken in Aklavik, Arctic Red River and Fort McPherson.

The situation in Yukon is more critical with respect to the long-term survival of Indian languages, partly because the Indian people still speaking the languages are few in number, but more particularly because Indian people are a minority of the Yukon population. Only in Old Crow, where *Kutchin* is spoken, is the long-term survival of the language a distinct possibility, as much because of its currency in adjacent regions of Alaska and NWT as because of the relative isolation, determination and social vitality of the Old Crow Kutchin. Indian languages seriously in danger of disappearing include: *Tutchone*, spoken at Carmacks and Mayo; *Tagish*, spoken at Teslin and Carcross; and *Kaska*, spoken by Indians in northeastern BC and southeastern Yukon (e.g., Upper Liard, Watson Lake and Ross River).

An agreement between the Government of Yukon and the Council for Yukon Indians ensures that native languages are taught in eight Yukon schools. In order that the teaching of native languages may expand, Yukon College has begun to offer a native language instructor certificate course. This course extends over three years and will help develop the native language course content and related curriculum. In addition to the native languages project, there are several native programs offered in different schools with the support of the Department of Education, Advanced Education and Manpower. These programs include trapping, native dancing, crafts and native outdoor education. To aid in the presentation of these programs, a number of joint publications, by the Council for Yukon Indians and the Government of Yukon are used. Finally, cross-cultural co-ordinators are employed in a number of communities in Yukon to help the school system and parents work together to give Indian children a better education.

The federal and NWT territorial governments are making a determined effort to respond to native organizations' increased commitment to language retention. Kindergarten and junior grades are now taught in the students' mother tongue throughout NWT, and curriculum and textual developments pay considerable attention to language and associated cultural sensibilities.

Active linguistic research is carried out with support from all governments in both northern territories with a view to preparing dictionaries, grammars and improved writing systems for all the main language groups. There are native language radio and television broadcasts, simultaneous translation (Inuktitut/English) during all NWT Legislative Assembly sessions, and many native language articles in northern newspapers and periodicals. It is noteworthy also that federal enquiry reports (e.g., Environmental Assessment Reviews) dealing with the eastern Arctic appear simultaneously in English, French and Inuktitut, and that learned journals often carry article abstracts in the same three languages.

Inuktitut translators have formed a national association to further their professional needs and undertake preliminary work in terminology development aimed at coining and standardizing Inuktitut terms to cover newly introduced concepts in legal, medical, technical, scientific, financial and other lexicons.[1]

3.5 Educational Levels

3.5.1 NWT

School enrolment in NWT during 1984/85 was about 13,700 pupils. Of this number, about 1,300 were attending kindergarten and approximately 1,500 were attending each of the first three primary grades. Numbers of pupils declined steadily from the third grade onward. About 1,200 pupils were enroled in high school, in grades 10 through 12. In 1985, grade 10 programs (apart from programs in seven secondary schools) were offered in eight communities. It is likely that the number of pupils continuing with high school courses will increase as grade 10 classes and beyond are added to schools situated in the communities. Plans are underway to add additional grade 10 classes in the upcoming school year.

The lack of local high school classes is seen as a special problem for Inuit pupils in the eastern Arctic. There is currently only one high school in the region — at Frobisher Bay. Other high schools are located at Fort Smith, Hay River, Inuvik, Pine point and Yellowknife. Though high schools offer vocational education as well as academic subjects, many other opportunities are available for students to enrol in vocational training programs; some of these are offered in home communities if numbers warrant.

The Arctic College is the NWT college system. It includes two campuses, at Fort Smith and Frobisher Bay, and two programming centres, at Yellowknife and Tuktoyaktuk. There are also plans to establish an Arctic College in the Inuvik and Keewatin regions. The college program aims to give northerners a chance at a better education and more job opportunities. Programs range from vocational pre-employment training to university transfer courses. A sampling of last year's offerings incudes:

- social work
- teacher education
- certified nursing assistant
- renewable resources management
- secretarial training
- welding
- public and business administration
- mechanics
- electronics
- carpentry
- telecommunications
- house maintenance

The Thebacha campus at Fort Smith (known as the Adult Vocational Training Centre until recently) offers most of these programs. The Iqaluit campus at Frobisher Bay was established in 1985 and provides services to the primarily Inuit residents of the eastern Arctic. Program offerings range from public and business administration and academic programs through trades training to career orientation. Solidly established programs of basic adult education at the community level will probably be extended. Nursing assistant courses are available at Yellowknife and Inuvik hospitals. Additionally, many NWT students take specialized trade courses or higher education outside the territories. Financial assistance is available for students enrolled in post-secondary education, both in the territory and at southern educational institutions, including universities.

The NWT also operates an Apprenticeship Program. Over 400 apprentices were registered in 37 trades in NWT during 1985. Over 70 apprentices received journeyman certificates during the same year.

3.5.2 Yukon

In 1985, there were 4,590 children attending classes from kindergarten to grade 12 in Yukon's 26 schools. There are ten schools located in Whitehorse; one senior high school, three junior high schools, one primary school and five elementary schools. Rural communities all have schools extending from kindergarten to grade seven, eight, nine or ten. There are regional high schools in Watson Lake, Mayo, Faro, Haines Junction and Dawson City.

Yukon College in Whitehorse offers programs which range from academic upgrading through trades and technical to business administration and university transfer. A number of new programs were offered in 1984/85, including engineering design and drafting technology, computer management and full-time business administration. In 1984/85, approximately 826 students participated in full-time programs and 493 students in university transfer programs, while 2,679 were involved in part-time programs in Whitehorse and other communities.

Construction of a new Yukon community college in the Takhini area began in 1986, with completion expected in the summer of 1988.

Community Learning Centres are located in a number of Yukon communities and offer ongoing skills upgrading for residents unable to relocate in Whitehorse for training. As well, the college operates two mobile units which provide courses in such areas as small engine repair and basic home repair to residents of various rural communities.

Through grants and loans, the Government of Yukon also assists Yukon students attending post-secondary institutions outside of Yukon. Approximately 350 grants are awarded annually and about 200 certificates of eligibility for Canada Student Loans are distributed.

As in the NWT, Yukon offers an Apprenticeship Program. During 1984/85, 52 journeymen and apprentices received journeyman certification and 32 journeymen received their Interprovincial Standards Red Seal.

3.6 Economic Characteristics

The native residents of the North have now entered almost every occupational and economic stratum of Canadian society as it exists in northern Canada. There are native businessmen who own and operate large private businesses and others who manage co-operatives, municipal budgets and sophisticated management tasks in transportation, communications, regional organizations and so on.

Because of the relative newness of the formal educational system in much of the Arctic, and because of a general reluctance to move south for long periods, there are few practitioners trained in professional fields requiring lengthy formal education. Those fields which have less rigid requirements for training programs (e.g., aviation, health or teaching auxiliaries and mechanical trades) have attracted many entrants.

One characteristic of the northern workforce is the diversity of occupations an individual may successively experience over a span of years. This characteristic is found in other economically marginal areas of Canada and the world, since it allows adaptation to the unpredictably changing economic conditions in frontier and marginal areas subject to either development or depression. It also reflects the preference of most members of the adult workforce, as they value personal freedom and operate in a society which values individual autonomy. In a wage employment situation these values can be well expressed by occasional job changes.

Another reason why native people generally favour seasonal, shift or part-time employment is because trapping, hunting and fishing activities continue to be important to them despite the increasing intrusion of the wage economy. One of the ironies of this native preference for traditional activities is that large amounts of cash are required to obtain modern production technology. However, with the decline of cash income from trapping and sealing, harvesting can no longer generate the money needed to buy goods of production such as guns, ammunition, snowmobiles and traps. Consequently, native people have increasingly had to turn to wage employment in order to acquire the goods and services imported from the south.

When wage employment is scarce, the traditional sharing networks that still exist in many of the smaller native communities enable individual households to continue being self-sufficient. Indeed, the sharing of resources such as food, equipment and cash has, in recent years, reduced the need for social assistance payments in many native communities.

The largest employer in the North is government, especially territorial and municipal government. The vast majority of local government positions in the smaller native communities are filled by local residents. About 27 per cent of the 2,800 Government of NWT personnel are native northerners.

As of December 1985, there were 32 active co-operatives in NWT. Permanent employment was around 400 people in 1985, not counting casual employees and fishermen (for a total payroll of about $3.5 million); the vast majority of employees are native people.

3.7 The Arts

The growth in production and appreciation of art in its various forms is one manifestation of the reawakening of cultural and ethnic pride which native people in the North have experienced in recent years. The skilful development of the Inuit soapstone carving market in the 1950s and the graphic print market in the 1960s has resulted in the growth of an art industry in the North. This has brought significant economic benefits to a large number of people and international recognition to Inuit artists.

In addition to the widespread production of stone, bone and ivory carvings throughout the North, several Inuit communities are now acknowledged centres for fine art printmaking. The earliest centre to be established was in Cape Dorset, NWT (in 1959), followed by Povungnituk, Quebec (1962), Holman, NWT (1965), Baker Lake, NWT (1970) and Pangnirtung, NWT (1973). Most recently, Clyde River, NWT, has begun printmaking, especially on textiles. Other media in which Inuit artists work include appliqué wallhangings (at Baker Lake, NWT), weaving (at Pangnirtung, NWT), fashion design and sewing/embroidery (at Spence Bay, NWT) and handcrafted jewelry (in Frobisher Bay, NWT).

The art forms of the Dene are equally appealing, whether moosehair tufting, porcupine quill embroidery or beadwork, often in colourful geometric or floral designs. The Dene use natural dyes in their artwork. Many of their designs were traditionally incorporated into footwear and clothing, especially ceremonial attire.

Both the Inuit and Dene dance and have a musical tradition based on the drum. In general, the Inuit drum dance is a solitary event, the dancer providing his/her own accompaniment on a hand-held drum. However, the Inuit of the Mackenzie Delta region perform a group dance with musical accompaniment provided by drummers who remain seated. Dene drumming is also done to accompany dancers. In both cases singing or chanting is part of the dance. In various Arctic regions, women still perform traditional throat-singing.

Modern musical instruments are now used in the North, and accordian and fiddle music often set the pace at community dances. Younger musical artists often sing humorous or satirical ballads or laments accompanying themselves on electric guitars. Several "groups" have developed, playing rock or modified country and western. Festivals such as "Folk on the Rocks" in Yellowknife and the "Northern Quebec Music Festival" are now annual events.

Many of the northern artists appearing at these festivals also perform at concerts elsewhere in Canada and through their records have gained appreciative followings overseas as well as throughout the North. Popular songwriter-performers include Etulu Etidlooie, Charlie Panigoniak, Mark Papigatuk, William Tagoona and William Thrasher.

Northern filmmaking is a developing art form, especially since the establishment of the Native Conmunication Society in the western Arctic regions and the Inuit Broadcasting Corporation (IBC) which, in cooperation with Taqramiut Nipingat Inc. of Salluit, Northern Quebec, produces television broadcast programming for more than 20 communities in Labrador, northern Quebec and Northwest Territories. In addition to native-run TV production facilities in Daker Lake and Frobisher Bay, IBC also has film units operating out of Cambridge Bay and Igloolik.

Native artistic performances receive the most publicity, but more non-native dance, music and theatre is coming to the North. The Northern Arts and Cultural Centre, constructed in Yellowknife in 1984, provides a fine new stage for both non-native touring companies and local groups. Directors of the 315-seat theatre raised $1.3 million to renovate an old high school gymnasium for their new theatre. Among artists who have performed were the Royal Winnipeg Ballet and flutist Paul Horn. The centre also presented productions of its own — "The Man of La Mancha", for one — and featured other local performing troupes.

There has been considerable growth in publishing the works of native northerners since the appearance of the autobiographies of the Mackenzie Delta resident Nuligak and Keewatin resident John Ayaruaq in the 1960s. In the decades following, Inuit authors whose books have been published include Norman Ekoomiak, Minnie Aodla Freeman, Alice Masak French, Peter Pitseolak, Markoosie, Nick Sikkuark, Armand Tagoona, Ruth Annaqtuusi and Anthony Apakark Thrasher. Many others have contributed material to the various periodical publications which include *Inuktitut, Ajurnarmat/Ajurnangimurat* and *Taqralik*. This increase in publishing has also resulted in some northern artists' work becoming well known through the medium of book illustrating, for example, Germaine Arnaktuayok, Alootook Ipeelie, Agnes Nanogak and Sorosilutu Ashoona.

3.8 Social Change

The most noticeable change in the North over the past 30 years has been the growth and development of permanent communities. The move from the small, family-centred camps on the land into permanent settlements situated at trading posts and churches started gradually, accelerated after World War II and was almost completed by the mid-1960s. The reason often given for the move into settlements was to enable children to attend the schools opening at permanent settlement sites and to bring the people to the places where government (including health and welfare) services were administered. These changes were taking place at a time when the fur trade was in decline and tuberculosis was the scourge of the North. It was, therefore, a period of insecurity and of great uncertainty. At times, ten per cent of the population was away at distant sanitoria for extended periods. Results of these changes were a loss of confidence in the historic ways of making a living and coping.

The new settlements were administered by government personnel, and native leaders were no longer seen as leaders in the new communities. The first settlement councils were purely advisory and had little effective say in the direction or administration of the new communities.

By the 1970s, however, community councils began to undertake certain administration duties, such as administering local housing. Co-ops, a growing movement since their inception in 1959, provided important management experience. Thus, the people began to assume a greater degree of control over programs affecting the quality of life in their own communities. Responsibility for game regulations, economic development projects, community services and municipal planning carried over to a greater degree of involvement with the affairs of the territorial governments which increasingly administered former federal programs over a larger area of responsibilities.

These changes have not been without adjustment problems for the people affected. Schools, while imparting new skills, may also impart different value orientations from those of the home environment, and many of the modern influences appear to the young to devalue earlier ways of doing things. The period of rapid social change, in the 1960s especially, was therefore a traumatic time for many individuals and families. Consequently, for the first time in the North, particularly in the larger communities, policemen were regularly involved in work familiar to their colleagues in urban centres in southern Canada. Much of the "crime" was committed by young offenders, often abuse of property and alcohol-related crimes, but also acts of desperation, such as suicide or assault.

More recently, the problem areas have been the ones where native people are just gaining control: education and health, land use (particularly by industry), and game and fishery management. Partly because there is now a native majority on the NWT council, federal and territorial governments better understand the importance of consultation on matters affecting native people in the North. Still, there are persistent problems that have no explicit policies or effective programs to resolve them. This lack of action provides the major rationale for comprehensive land claims by northern native people.

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4.0 History

4.1 Prehistory

Radiocarbon dating of bone artifacts found in recent years at Old Crow Flats in northern Yukon indicates that man lived there approximately 25,000 years ago. This is the oldest find substantiated in the Americas and it may mark a route along which immigrants, originally from Asia, penetrated to the south between the ice sheets to the east and west.

The next evidence of occupation in the North was gathered by the Rescue Archaeology Programme of the Archaeological Survey of Canada. Work at the Bluefish Caves site in the Porcupine basin of northern Yukon has provided paleoenvironmental, chronological and cultural data indicating that the uplands located to the south of glacial lakes Old Crow and Bluefish were exploited by human groups as early as 18,000 years ago. By 15,000 years ago, man had spread through what is now Yukon and the country west of the Mackenzie River. These people occupied the valleys and plateaus of Alaska and Yukon. Campsites were usually located at either fishing places by lakes and rivers or in the mountains along caribou migration routes. More recently (6,000 years ago), these people may have been strongly influenced by immigrants from Asia who brought many of the characteristics found among the Athapaskan Indians living in Northwest Territories and Yukon today.

East of the Mackenzie, evidence points to the penetration of the Arctic by people from the south about 8,000 years ago. Moving to the edge of the tree line which was then farther north than it is now, these people hunted large land mammals. They developed a culture based on hunting caribou and bison. This culture is known as the *Northern Plano Tradition* which may be related to the later *Shield Archaic Tradition* and which in turn may be ancestral to the northern Algonkian Indians.

The tundra north of the tree line in Canada was probably uninhabited until about 4,500 years ago, when an Asiatic culture originating in the west and belonging to the *Arctic Small Tool Tradition* appeared in most of the Canadian Arctic. By about 500 BC, this had evolved into the *Dorset Culture* which had a richer variety of artifacts and which flourished for nearly 1,500 years. This culture continued to exploit inland-based mammals such as the caribou during the winter months and relocated north to the Arctic Ocean during warmer periods. Gradually, certain groups stopped these migrations and remained at or near the coastal regions, focusing primarily on sea resources.

The Dorset people were displaced by a new wave of immigrants from Alaska which, about 1000 AD, began to spread eastward across the Canadian Arctic. The people of this culture, which has been named the *Thule Culture*, had superior tools and techniques, lived largely by hunting whales and other sea mammals, spoke Inuktitut (the language of the Inuit), and were the ancestors of Canadian Inuit of today.

While the Thule people were moving east into the Canadian Arctic, the Norse settlers in Greenland were exploring the land to their west. The Thule people and the Norse certainly met in Greenland, and material of Norse origin found at several sites in the eastern Canadian Arctic shows that the Inuit there had some contact with them, though it may not have been direct.

4.2 Exploration

Credit for the exploration of the northern territories properly belongs to those native people who first inhabited the North. They not only discovered the country but also learned how to live on the resources they found there. The European exploration began much later with the search for a north-west passage to the Orient. Martin Frobisher led the way in 1576 when he reached Baffin Island and, though he himself was diverted by the belief that he had found gold ore there, the search for a north-west passage was taken up by John Davis, Henry Hudson, Thomas Button, Robert Bylot, William Baffin, Luke Foxe and other adventurers who in the next half-century determined the main features of Hudson Bay and the shores of Baffin Bay and Davis Strait.

The Hudson's Bay Company was established in 1670, and for the next hundred years exploration commerce was directed toward the rich fur country south of the 60th parallel. Voyages along the west coast of Hudson Bay as far as Repulse Bay were also undertaken. The only parts of NWT to be affected by exploration, trade or the conflict between the English and French were the islands in James Bay and Hudson Bay, especially Charlton Island which was used by the fur trade as a depot for supplies brought in by sea from Europe. In 1769, however, Samuel Hearne set out from Churchill on his first attempt to reach the Coppermine River. On his third attempt, he succeeded in reaching Bloody Falls and the nearby Arctic Ocean. The next important journey was carried out by the rival North West Company in 1789, when Alexander Mackenzie travelled by canoe down the river which now bears his name to reach the Arctic Ocean not, as he had hoped, the Pacific. This journey opened up the Mackenzie region and southern Yukon to fur traders from the south.

After the conclusion of the Napoleonic Wars, the search for a north-west passage was resumed by the Royal Navy. In 1818, the explorer John Ross entered Lancaster Sound but reported that it was closed by mountains. Next year, W.E. Parry, who had been second in command to Ross, reentered Lancaster Sound and sailed as far west as Winter Harbour on Melville Island. Ice prevented him from completing the passage, but he wintered safely and then, as the ice to the west remained impenetrable the next summer, returned to England. On his next expedition in 1821, Parry entered Hudson Bay and Foxe Basin, wintered at Winter Island off Melville Peninsula and continued north, but he was unable to get through Fury and Hecla Strait, forcing him to winter at Igloolik. Next summer ice conditions remained bad and he returned to England. On his third north-west passage attempt, he wintered on north Baffin Island but had to abandon his mission the next summer when one of his ships was driven ashore at Fury Beach on the east coast of Somerset Island.

Meanwhile, John Franklin was sent twice by the British Admiralty to travel overland to the shores of the Arctic Ocean. On his first journey, he covered the coast from the Coppermine River east to Point Turnagain on Kent Peninsula. On his second voyage, he travelled west from the Mackenzie Delta to Return Reef, west of Prudhoe Bay in Alaska.

Interest in the Arctic remained high for the next decade, when the most notable achievements were John Ross's expedition which entered the Gulf of Boothia, when the North Magnetic Pole was located; George Back's journey down the Back River to the sea; and the exploration of most of the rest of the Arctic coast by Peter Dease and Thomas Simpson. Farther west, Robert Campbell of the Hudson's Bay Company ascended the Liard River in 1840 and crossed the watershed to discover the Pelly River. During the next 12 years, he was responsible for the original exploration of much of Yukon Territory.

In 1845, a major naval north-west passage expedition sailed under Franklin and entered Lancaster Sound. When it failed to reach the Pacific and did not return, the search for a north-west passage became secondary to the search for the missing ships. Numerous expeditions took part in this quest. By 1857, Francis Leopold McClintock discovered records on King William Island showing that Franklin's ships had been abandoned there. By that time, the north-west passage had been found but proved to have no value as a route for contemporary naval or merchant ships, many of the islands of the Canadian Arctic Archipelago had been explored, and John Rae had completed the exploration of the Arctic coast of the mainland.

The next major Arctic expedition was George Nare's North Polar Expedition which explored the north coast of Ellesmere Island in 1875-76. From 1898-1902 Otto Sverdrup, a Norwegian, made much more extensive discoveries, including Axel Heiberg Island and the Ringnes Islands, and explored the west coast of Ellesmere Island. The first man to take a ship through the north-west passage was Roald Amundsen, another Norwegian, from 1903-06. During the Canadian Arctic Expedition (1913-18), Vilhjalmur Stefansson discovered Brock, Borden and Meighen islands to complete the outline of the Queen Elizabeth Islands. The few remaining gaps in the map were completed by smaller expeditions before World War II and by post-war Royal Canadian Air Force air photography.

4.3 Development up to World War II

4.3.1 Yukon

Native groups in Yukon made their first contact with non-natives in Alaska. Russians and Americans had penetrated both Alaska and Yukon from the south coast of Alaska by the early 1700s. By 1784, the Russians had established a permanent post in southeast Alaska and were trading extensively with the native population. In Yukon, native middlemen dominated trade both within Yukon and into Alaska until the 1850s.

To the east, intensive trade with fur-traders in the southern Mackenzie region did not begin until the late 1700s. Trade with northern Yukon Indian groups did not become regular until the 1820s and continued to be dominated by native middlemen. It was not until 1840, when a post was established at the site of present day Fort McPherson, that the fur trade really took hold in the western Arctic.

As the fur trade increased in importance in the Mackenzie and Yukon regions, the activities of the indigenous people became increasingly channelled. By strategically locating posts at highly accessible points, hunting families began to stay in the area of a particular post, especially when they had developed an ongoing debt-credit relationship. Gradually, tribal, nomadic hunting bands began to disappear and small, more sedentary family groups became the norm. Native people became more reliant on trading posts for food, ammunition and clothing as they began to spend more time trapping and less time hunting.

The effects of the fur trade were similar across the North. Native groups became more sedentary and reliant on foreign goods, and the introduction of diseases from the south greatly reduced the native population.

The fur trade dominated the Yukon economic scene for most of the 1800s. However, by the end of the century, the attention of the world was drawn to Yukon for a very different reason. Prospectors from northern British Columbia had been moving farther north in their search for gold, and in 1898, exceptionally rich placer gold was discovered in Bonanza Creek which runs into the Klondike River, a tributary of the Yukon River. The resulting gold rush brought tens of thousands of people into the North, especially from the United States and southern Canada. By the end of the century, Dawson City (with a population of 25,000) had become the largest city in Canada west of Winnipeg. This was more than the population of the whole territory today.

The richest placers were worked out in a few years, and the gold rush quickly faded. But, it left two important legacies. One was the White Pass and Yukon Railway, which, although not in use, runs from tidewater at Skagway to Whitehorse on the Yukon River, providing much easier and more direct access to Yukon from the south than the former route by ship to the Bering Sea and then by paddle steamer up the Yukon River. The other was the Yukon Territorial Government, with a fully elected council responsible for legislation and a commissioner, appointed by the federal government. Yukon had also become a federal constituency. However, government involvement in development and in economic and social processes remained insubstantial for many years. Activities operated as they had previously, with a little more direction from southern Canada and with the added feature that the North West Mounted Police frequently contributed to the welfare of native people. Gold mining survived, owing to rationalization of claims allowing the use of hydraulic plants and dredges on low-grade and reworked properties. Production, however, was much lower. Additionally, there were sporadic attempts to mine copper, silver and lead. By the outbreak of World War II, however, the total population of the territory had fallen below 5,000.

The gold rush benefited native people very little. In fact, it introduced diseases which greatly reduced their numbers and disrupted their social lives. One benefit of the gold rush was that native people became more closely identified with the institutions of the various towns and quickly resumed involvement in the fur trade.

Besides the gold rush, the appearance of whaling ships in the late 1880s along the north coast of Yukon attracted many native people. Meat, driftwood and furs were exchanged for wages. The availability of a wider range of goods at lower prices was the added incentive many native people needed to draw them away from the fur trade. By 1906, however, the price of baleen had fallen and the whaling period ended. Fortunately, fur trading was still active in the Mackenzie region, and native people quickly redirected their economic activities.

By 1912, the fur trade had absorbed most people who had been occupied by whaling and the gold rush. Complex needs had been created over the previous 20 years, and most northern natives had become irrevocably bound to the fur trade. The next 20 years would see the development of a highly efficient and complex hunting and trapping economy where most participants were interested in trade and/or settlement life.

4.3.2 NWT

The fur trade closely followed, and sometimes preceded the explorers in NWT south of the tree line. The Indians brought the fur they trapped to trading posts to exchange for firearms, knives and other necessities, and fur long remained the only significant export well into the early 1900s.

As in other parts of Canada, the fur traders opened the way for other agents of change, particularly missionaries of the Anglican and Roman Catholic faiths. Missionaries brought cultural change to the area and eased relations between Indian and Inuit peoples. The presence of missions and, later, mission schools at the various trading posts increasingly attracted northern natives and gradually led to the establishment of permanent settlements. By the end of the 1800s, settlements dotted the shores of the Mackenzie River right up into the delta. Because of the slump in the whaling industry and the gold rush, the Inuit and even natives from Yukon were attracted to the fur trade industry. Trading along the Mackenzie River subsequently continued to be the primary economic activity.

In central and eastern NWT, there was little to attract the fur trade north of the tree line. Fur resources were scarce and Inuit groups concentrated on the harvesting of sea mammals. Unlike the west, it was the whalers who sailed in the wake of the exploring ships. By 1820, they had entered Lancaster Sound and the whale fishery soon spread down the east coast of Baffin Island. In 1860, commercial whaling began in Hudson Bay, but by the end of the century, the industry was in decline owing to over-exploitation, the introduction of mineral oil and the availability of baleen substitutes. In the west, whalers from Alaska appeared in 1889, but the industry had run its course by 1910. Several whalers had established year-round stations in the Arctic where they carried out some trading with the Inuit. This was not very successful, and gradually the whalers withdrew. As in Yukon, the early contacts of the native people with no immunity to many diseases prevalent in the south led to a disastrous reduction in the native population.

NWT was governed by Ottawa during this period. The position of Commissioner was filled by the Deputy Minister of the Interior, and all members of the NWT Council were federal civil servants.

Administration of the North was conducted through the North West Mounted Police posts scattered throughout the territories.

There was little interest in non-renewable resources. During this time, however, the discovery of oil by Imperial Oil at Norman Wells in 1920 initiated a short-lived surge of activity in petroleum exploration along the valley. This was followed by extensive mineral prospecting made much easier by the development of bush flying. Mining of pitchblende, discovered at Great Bear Lake in 1930, and then of gold, discovered in the Yellowknife Bay area of Great Slave Lake in 1933, began in the years immediately before World War II and provided a convenient market for Norman Wells oil.

In 1933, the Eldorado Mining and Refining Port Radium Mine on Great Bear Lake began production of uranium concentrates containing radium. Consolidated Mining and Smelting Company milled its first gold ore from the Con-Rycon mine at Yellowknife in 1939. Owing to a labour shortage, the mine was closed in 1943 and was not reopened until 1946.

4.4 World War II and Subsequent Defence Activities

World War II had a dramatic effect on the northern landscape. It began in a small way with the need for meteorological information for weather forecasting, a need so important that the Germans established secret weather stations in Greenland and northern Labrador.

The entry of the US into the war, however, led to activities on a scale which must have seemed incredible to the native inhabitants of the North. In the west, there was the chain of airfields which formed the Northwest Staging Route for the delivery of aircraft to the USSR, the Alcan Highway built to connect them and the Catel telephone line to provide communications. There was also the Canol project, which included development of the Norman Wells oilfield, improvement of communications along the Mackenzie Valley, pipelines between Norman Wells and Whitehorse and from Whitehorse to Haines, Watson Lake, and Fairbanks and a refinery at Whitehorse. In the east, the Crimson Staging Route was built through Baffin Island and Greenland to ferry aircraft to Europe and casualties to America. Though gold mining declined, the pitchblende at Great Bear Lake increased in importance with the advent of atomic weapons research in the United States.

The war brought large numbers of US servicemen and civilians into the North, and in many areas they greatly outnumbered Canadians.

The Cold War meant new major defence projects, including weather stations in the Queen Elizabeth Islands, a Low Frequency Loran chain, a pipeline from Haines, Yukon, west to Fairbanks, Alaska, the Distant Early Warning (DEW) Line, Strategic Air Command air refuelling bases and communications for the Ballistic Missile Early Warning System. These defence activities gave to the North airfields, roads, communications, navigational aids and other infrastructure much earlier and of a much higher standard than could have been justified by civil needs, though not always in the places civil needs would have indicated.

4.5 Development Since World War II

4.5.1 Yukon

The war reversed the decline in the population of Yukon which had followed the gold rush and helped pick up the economy which had suffered from the decline in fur prices during the 1930s. Improvements in communications, and particularly the Alcan Highway from British Columbia, brought prospectors and mining companies back into the territory. Ore bodies which had been marginal became profitable. Copper was again mined at Whitehorse, and production of lead and silver was expanded near Mayo. An asbestos mine at Cassiar in northern B.C. trucked its fibre to Whitehorse via the Alcan Highway and then railed it down to Skagway, Alaska. The Alcan Highway (renamed the Alaska Highway) made Whitehorse an increasingly important transportation centre. Tungsten concentrates from Flat Creek in NWT were also trucked to and then south along the Alaska Highway, and a large asbestos mine at Clinton Creek near Dawson was in production for several years before its ore was exhausted. By far the most important development, however, was the lead-zinc property at Anvil, 290 km north of Whitehorse. The value of its production soon exceeded that of all the rest of the territory and Faro, the town built to service it, quickly became the second-largest community in the territory.

To support these mining developments, several roads were built throughout Yukon. In 1951, a road was completed between Whitehorse and United Keno Hill silver mine near Mayo. Four years later, the Keno-Whitehorse road was connected to Dawson from Stewart Crossing, forming what is now the Klondike Highway. The completion of this road to Dawson later justified the construction of the Dempster Highway north from Dawson to Eagle Plain, and later into the Mackenzie Delta (1970s).

Throughout the 1950s and 1960s a definite roads policy began to emerge. It encouraged road construction that would lead to economic development and resulted in a comprehensive Yukon road network. Today, every community in Yukon is located on a road, with the exception of Old Crow in the northwest.

Dawson, bypassed by the Alaska Highway, was little affected by these mining activities after the war, and the fixed price for gold ensured its continued decline. The transfer of the territorial government from Dawson to Whitehorse in 1953 was inevitable. Today placer mining is still important in the Dawson area, and the Klondike Highway brings many tourists north from Whitehorse and farther south on their way to Alaska.

The devolution of administrative authority to elected representatives was, however, slow and gradual until 1979, when the Minister of Indian and Northern Affairs Canada instructed the Commissioner to hand over many of his powers and responsibilities to the Executive Council of the territory. Yukon has been represented in the Federal Parliament since 1947, gaining the right to their own territorial representative in 1952.

4.5.2 NWT

In NWT, by contrast to Yukon, production of gold increased after World War II. For many years, gold and uranium, both of which were easy to transport, were the only significant exports. The main economic stimulus was provided by defence activities and government construction of schools, nursing stations and especially the new town of Inuvik, built to replace Aklavik as the administrative centre for the Mackenzie Delta. A highway was built to Hay River from the south, but it required the completion of the parallel railway in 1964 to bring Pine Point, a long-known major lead-zinc property, into production. This remains one of the largest mines in NWT.

Unlike Yukon, the development of an extensive road network has never taken place in NWT. Currently, roads are found in the Mackenzie Delta and in the southern portions of western NWT. The main highway, the Mackenzie, extends from Grand Prairie, Alberta to Fort Wrigley, NWT.

During the 1950s, the petroleum possibilities in the Arctic Islands began to be recognized. Exploration and drilling were carried out before the discovery of a major field at Prudhoe Bay on the arctic coast of Alaska gave tremendous impetus to the search for petroleum throughout the North. Large gas fields have been located in the Sverdrup Basin and the Mackenzie Delta, and interest is now centred in the Beaufort Sea, which has shown good promise of substantial reserves of oil.

In 1944, Eldorado Mining and Refining, a Crown Corporation, acquired all assets of the Eldorado mine. The Port Radium mine began production of fissionable uranium for the war effort (Manhattan project) in 1942. The mine was closed in 1960 and subsequently operated between 1976 and 1981 as a silver mine by Echo Bay Mines Ltd. In Yellowknife, Giant Yellowknife Mines Ltd. began gold production in 1948; it has continued to be a major gold producer. At Rankin Inlet on the west coast of Hudson Bay, nickel-copper concentrates were produced from 1957 to 1962. The Nanisivik lead-zinc mine on Strathcona Sound on northern Baffin Island began production in 1976.

The Cullaton Lake gold mine near Cullaton Lake in southern Keewatin District began gold production in October 1981. Echo Bay Mines' Lupin Mine at Contwoyto Lake in northeast Mackenzie District began gold production early in 1982. The Polaris lead-zinc mine on Little Cornwallis Island began production in November 1981.

Both the Nanisivik and Polaris mines are on tidewater, where transportation is relatively cheap, though seasonal. Conversely those mines involved in gold production ship their products south by air.

These economic developments have affected the native population both positively and negatively. Similarly the provision of education, health, housing and other social services has had numerous effects. The native population has increased rapidly and has moved from small camps based on hunting to the larger settlements where these services can be obtained. With the various health, housing and social services offered, their standard of living has improved greatly. However, the magnitude and speed of change has led to social problems such as alcoholism, crime and family violence.

Constitutional change has also been rapid. The appointed members of the Executive Council of NWT have been replaced by elected members, the seat of government has moved from Ottawa to Yellowknife and elected members now head various departments of the territorial government. NWT achieved joint representation in the Federal Parliament in 1947. In 1958, all of NWT was represented by one member. In 1979, NWT was divided into two ridings, western NWT and central/eastern NWT.

An important development in recent years has been the formation of native organizations with the goals of defining and defending what they consider to be their rights. Land claims and new political boundaries and structures have become dominant issues throughout the North.

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5.0 Native Organizations and Land Claims

5.1 The Recognition of Native Claims

5.1.1 Background

Indian and Inuit people have occupied and used land in Canada for many centuries. Comprehensive native claims arise where this traditional land use and occupancy, or "aboriginal interest", has never been dealt with by treaty or other means. British colonial policy, and subsequently Canadian government policy, has generally recognized the existence of an aboriginal interest in the land which had to be dealt with before non-native settlement could take place. Translated into practice, the policy resulted in making treaties with various Indian tribes, first in Upper Canada and later in Ontario, the Prairies, northeastern British Columbia and western sub-Arctic.

Two treaties were made in the North. Treaty No. 8, signed in 1899, covered the area south of Great Slave Lake and east of the Hay River (as well as parts of present-day northern Saskatchewan, Alberta and British Columbia). Treaty No. 11, signed in 1921, included all the rest of the Mackenzie Valley in NWT as well as part of the western Arctic coast and the southeastern tip of Yukon. No further treaties were concluded in the North after 1921, even though much of the territorial North had not yet been included (specifically, most of Yukon, the Arctic Islands, the central Arctic coast and the Keewatin district). No treaties were ever concluded with the Inuit.

Although the terms of Treaty Nos. 8 and 11 provided for reserve allotments, only the Salt Plains Reserve No. 195 (created in 1941 and now inactive) and the Hay River Indian Reserve No. 1 (created in 1974) were subsequently set aside. The federal government appointed a commission in 1959 to investigate the unfulfilled land provisions of the treaties in NWT. The commission viewed reserve allotments as outmoded and recommended a renegotiation of the treaties to provide for outright ownership of small household plots, compensation for lands lost and a percentage of Crown revenues from oil, gas and mineral developments. No action was taken on these recommendations. However, the Dene Nation representing Indians in the Mackenzie Valley, considers the treaties to be treaties of peace and friendship and not surrenders of land. They have pressed for a land claim settlement. The government, while maintaining that the treaties resulted in surrender of aboriginal title, has agreed to negotiate a comprehensive settlement on the grounds that the provisions of the treaties have not been fully implemented.

The 1900's and especially the post World-War II years, brought great changes to the material conditions of life among native northerners and to their economy. Although trapping has declined as the principal means of obtaining income, and while wages and government assistance have become more important, hunting, trapping and fishing have remained essential to the household economy and to social and cultural life of native people. Most native northerners continue to identify their interests very strongly with the land. Therefore, the rush of proposals in the 1970s for major developments such as a gas pipeline and a highway in the Mackenzie Valley and the accelerated exploration for oil, gas and minerals in many parts of the North were interpreted by many native people as a threat to their well-being and security. Local opposition in diverse native communities and the reaction of newly formed regional native organizations in the North frequently attracted the attention of national media.

This opposition to development projects coalesced rapidly around a central demand for a settlement of land claims. Other events hastened the process. One was the reorganization and revitalization of national and regional native organizations, beginning about 1968. Government funding for these organizations (at first for specific projects and subsequently to assist in the maintenance of the organizations themselves — core funding, was made available beginning in 1970. Regional native organizations were soon formed and funded in NWT and Yukon.

Seven native organizations were formed north of 60a/°N between 1968 and 1982. In Yukon, there was the Yukon Native Brotherhood and the Yukon Association of Non-Status Indians which, for the purposes of claims negotiations, later formed a common organization, the Council for Yukon Indians. In NWT, there is the Dene Nation (formerly Indian Brotherhood of the NWT), the Metis Association of NWT, the Committee for Original Peoples' Entitlement (COPE), the Tungavik Federation of Nunavut (TFN) representing Inuit claims and territorial constitutional positions in NWT and the Inuit Tapirisat of Canada (ITC) providing national representation for the Inuit. ITC functions as the national organization of Inuit of Canada, with a head office in Ottawa. ITC was also responsible for negotiating the land claim in the eastern NWT on behalf of three regional Inuit affiliates in the central and eastern Arctic formed in the late 1970s. Since autumn 1982, the negotiations have been conducted by the Tungavik Federation of Nunavut, which was formed specifically for that purpose.

Other factors behind native land claims in Canada include the passage of the *Alaska Native Claims Settlement Act* by the US Congress in 1971, followed in 1973 by three important court judgments — the Calder case in British Columbia (Nishga assertion of native title); the Malouf judgment in Quebec (interlocutory injunction in James Bay development) and the Morrow judgment in NWT (Caveat case). These three cases gave a measure of support to the native population on aboriginal land rights.

Native people in the North are determined that they will not only have a voice in what is happening on the economic development front but that they will have the opportunity to participate in whatever development is taking place. They consider that claims settlements are a principal means through which such influence and participation shall be effected.

Meaningful and influential involvement in land management and planning and the ownership of considerable areas of land are seen as contributing to this goal. With the lands and funds to be provided for in the settlements, the claimant groups in the North are making plans for becoming major players in resource development. Indeed, some are already taking advantage of claims-related loans to begin engaging in investment and business enterprises in mining, tourism and other areas.

The native people, however, are not willing to achieve economic development at the cost of destroyed homelands, cultures and lifestyles. They are concerned about environmental protection and the wisdom of sound land management and planning. They also wish to see wildlife properly managed and want to be closely involved in such management. In short, they insist that claims settlements provide for both economic development opportunities and the preservation of traditional pursuits according to their own choices.

5.1.2 Native Claims Policy

The federal government's response to these developments led to the 1973 Statement on Claims of Indian and Inuit People which recognized two broad classes of native claims: *comprehensive claims*, based on the notion of aboriginal title and *specific claims*, concerning grievances Indian bands had about the government's administration of Indian lands and other assets under the *Indian Act* or other statutes, and the fulfilment of Indian treaties. To date, all claims in the North have been comprehensive claims.

After an extensive review in 1981 of the comprehensive claims policy, the government released the booklet *In All Fairness — A Native Claims Policy*. This reaffirms its commitment to the equitable settlement of comprehensive claims through negotiation, according to newly enunciated guidelines. A further review of this policy is scheduled to begin soon.

5.1.3 Provisions of Comprehensive Claims Policy

It is the federal government's view that claims negotiations should result in compensating native people for the loss of their traditional interest in the lands concerned and should result in effective native involvement in the future of the region. Claims settlements aim at exchanging undefined aboriginal title for concrete rights and benefits, guaranteed by legislation. It is the government's intent that the settlements preclude the possibility of future claims based on aboriginal title but that elements of agreements be open to change by mutual consent. In its current policy, the government envisages several areas of benefits which might flow from the settlements, including land, money, access to resources and a stronger role in northern land and resource use.

Land

Land selected by native people for their continuing use should be traditional land which they currently use and occupy. At the same time, persons of non-native origin who have acquired, for various purposes, rights in the land in the area claimed are equally deserving of consideration. Their rights and interests must be dealt with equitably.

Other basic access rights must be taken into consideration, subject to fair compensation as mutually agreed either through negotiation or arbitration. They include:

- rights of access for transportation routes within and through a settlement area;
- rights of way for necessary government purposes;
- rights of access to holders of subsurface rights for exploration, development and production of resources.

Similarly, special protection must be ensured against unlimited expropriation of lands granted in settlement. Meaningful and influential native involvement in land management and planning decisions on Crown lands could be initiated and strengthened by providing membership on those appropriate boards and committees where decisions affect the lives of their communities.

Where natives use land situated in more than one jurisdiction, and in the event that this use cannot be continued through mutual agreement among the competing parties, compensation may be paid or specific wildlife harvesting rights granted, subject to the general public laws existing within the area in dispute.

Even where jurisdictions are not at issue, some lands are used by more than one native group. Where this sort of overlapping exists and where there appears to be no ready agreement among the different users, some appropriate and timely means must be found to resolve the differences. Until this is done, no land in these areas will be granted.

Again, the motive for approaching land selection in this way is to protect the rights of Canadians, native and non-native alike, who might be affected by the settlement. Furthermore, it is designed to encourage native people to participate actively in fair and equitable negotiations surrounding these decisions.

Wildlife

In addition to providing for rights to hunt, fish and trap, the comprehensive claims settlements provide for the involvement of native people in a broad spectrum of activities affecting the whole area of wildlife. This may include, for example, fuller participation in wildlife management, such as making recommendations to the government on the establishment and maintenance of wildlife quotas or providing advice on the formulation of management policies and other related matters.

Generally, the settlements may provide for prescribed preferential rights to wildlife on Crown lands. Exclusive rights would be limited to fee simple or the equivalent native lands or to specified species elsewhere. All areas, whether they include those for exclusive native use or those shared by the general public, will continue to be subject to the existing general laws as they apply to hunting, fishing and trapping; they will be further subject to present and future sound conservation policies and public safety measures.

In any event, the settlements will clearly define the terms on which native people will have access to wildlife resources on Crown lands. Any exceptions to the laws which generally apply to these areas will be clearly outlined, again taking into consideration any rights acquired by non-native users.

Subsurface Rights

The federal government is prepared to include subsurface rights in comprehensive land claim settlements in certain cases. The motive for granting such rights is to provide native people with the opportunity and the incentive to participate in resource development. In addition, granting subsurface rights close to communities and in critical wildlife habitat areas would be a protective measure designed to eliminate any possibility of granting resource development rights to any prospective developer in conflict with the wishes of a local community.

Monetary Compensation

Monetary compensation can take various forms, including cash, government bonds and other forms of debentures. But no matter how these capital transfers take place, the amounts negotiated must be specific and finite. As to when payments should be made, negotiations would be tailored to meet the needs of various native groups and government.

Other Provisions

One of the mutual goals of comprehensive land claims settlements is to give the beneficiaries control over their own affairs. With this in mind, the federal government recognizes that native-controlled institutions will be established to facilitate the lasting participation of all the beneficiaries of the settlement. These entities will be designed and staffed by native people, and their decisions will be implemented primarily by native people; they should protect and enhance their assets through sound management practices.

All compensation monies to be paid under proposed settlements will be regarded as capital transfers and will be exempt from all taxation. However, income derived from such compensation shall be subject to the usual provisions of the Income Tax Act. Except in relation to municipal services, unimproved lands may be exempted from property taxation.

Unless agreed to by the parties, proposed settlements will not diminish the eligibility of beneficiaries to current and future programs for native people. Access to such programs will be in accordance with the then current criteria.

It is not intended that new indeterminate programs geared solely to natives be provided by the federal government in settlements. Nevertheless, it is possible to refocus normal government resources to enhance the efficiency of existing programs and to achieve mutually agreed upon ends.

Although some forms of self-government at the local level may be included in the terms of settlement, the federal government does not view the claims process as a proper forum for political and constitutional development, because all citizens affected must be involved. It is also the government's view that, despite the desirability of settling outstanding claims early and expeditiously, controlled resource development need not be delayed so long as they neither prejudice nor precipitate the claims settlement.

5.2 The Claims Settlement Process

5.2.1 Funding of Native Claimants

In 1969, the federal government began funding native groups and associations to enable them to conduct research into treaties and Indian rights. Later, the research program was broadened to allow provision of financial support, including contributions and loans for research, development and negotiation of native claims. Accountable contributions have since been provided for the purpose of researching, developing and submitting claims to the federal government. Interest-free loans may be made once a claim has been accepted for negotiation by the Minister. These loans may be made for the purposes of further development of the claim, preparation of a negotiating position and actual negotiation of the claim. Following the attainment of agreements in principle, interest is charged on the loans. These loans are repayable from the first payments of an eventual settlement. The funding program is currently administered by the Research Branch, Corporate Policy, Indian and Northern Affairs Canada (INAC).

The Claims Funding Program is separate from the core funding of organizations which is administered by Secretary of State, and from special funding for interventions at public hearings with respect to development impact, which is administered by various government departments including INAC.

5.2.2 Government Representation

In 1974, the government established the Office of Native Claims (ONC) within INAC. This special office was given the mandate to negotiate the settlement of comprehensive and specific claims. Subsequently, ONC's primary functions have been to coordinate the review of claims submitted to the federal government by duly mandated groups and associations, and to represent the minister and the federal government in the negotiation of claims settlements. Although the native claimant groups may decide to pursue their claims in court, the federal government has held that negotiations are the most promising way of reaching equitable beneficial and mutually acceptable settlements.

With regard to the negotiation of comprehensive claims, in 1980 the government took the initiative of appointing chief negotiators from outside the public service. These people, calling upon a variety of experience, have each been able to bring a fresh and objective perspective to the negotiating table. They have direct access to the Minister of Indian Affairs and Northern Development on a continuing basis and are able to remain in continuing contact with centres of federal decision making.

Each chief government negotiator is supported by a compact group within the Sector dealing with native claims. As part of their responsibilities for the management of the federal negotiating teams, these groups provide research, analytical and coordinating services and give back-up assistance during negotiations. The Northern Program of INAC plays a leading role, but other departments are drawn into the preparation and presentation of positions as required (Justice, Environment, Fisheries and Oceans, Energy, Mines and Resources, Finance, Privy Council Office, Federal-Provincial Relations Office and others). By mutual agreement, the territorial governments are actively involved as part of the federal teams in negotiations of claims north of 60°. Their involvement is particularly important because many of the settlement provisions will fall within areas of territorial jurisdiction, requiring legislation and implementation by the territorial government concerned.

Responsibility for negotiating the settlement of specific claims rests primarily with negotiators within INAC.

5.2.3 Settlement Stages

The settlement process normally follows a series of stages beginning with interim or sub-agreements on discrete topics such as wildlife harvesting and management or land selection. When sub-agreements have been completed for all or most settlement components, they are compiled into an overall agreement-in-principle which is an accord covering the general terms of settlement. This is followed by a final agreement between representatives of the parties in which all provisions of the settlement are spelled out in detail. Ratification is achieved by the claimants through referenda held in the native communities, while government approval is provided by Cabinet. The final stage in the settlement of comprehensive claims is the passage of legislation by Parliament and by provincial or territorial legislatures where concerned, giving effect to the settlement. Implementation rests with the government agencies (federal, territorial or provincial) responsible for the administration of the various aspects of the legislation and with the beneficiaries, according to the terms of the settlement.

Three final agreements have been reached through the comprehensive claims process and proclaimed as law. They are the 1975 James Bay and Northern Quebec Agreement (with the James Bay Cree and the Inuit of northern Quebec), the 1978 Northeastern Quebec Agreement (with the Naskapis of Shefferville), and the 1984 Western Arctic Agreement (with the Inuvialuit).

5.3 Comprehensive Claims in the North

5.3.1 Council for Yukon Indians (CYI) Claim

The CYI, representing all people of Yukon native ancestry (approximately 5,500), was formed in 1974. It united the Yukon Native Brotherhood and the Yukon Association for Non-Status Indians for the purpose of negotiating their claim originally entitled "Together Today for Our Children Tomorrow" and submitted to the federal government on February 14, 1973. Between 1974 and 1979, a number of attempts were made to reach negotiated settlement of the claim with agreement falling short of achievement in each case.

Renewed and intensive negotiations, begun in 1980 with the appointment of a Chief Government Negotiator, led to the initialling by the negotiators for Canada, the Yukon Territorial Government and the CYI of an overall agreement- in-principle in January 1984 covering all major settlement issues, including the selection of land and local government for most of the Yukon bands. The agreement-in-principle was formally approved by the federal government in April 1984 and was ratified by eight of the twelve Yukon bands by July 1984.

However, at general assemblies in August and October 1984, the CYI passed resolutions calling for the renegotiation of major elements of the agreement-in-principle. It also called into question the support of those bands that had already ratified it. Beginning in October, the Minister of Indian Affairs and Northern Development met with the CYI and band representatives to discuss their concerns which included:

- loss of aboriginal title;
- limits of band authority;
- criteria for land selection;
- degree of native control and ownership of selected lands;
- regulation affecting subsistence hunting and fishing; and
- recognition of band membership.

The minister indicated that though he was prepared to make adjustments to specific areas of the agreement-in-principle, he would not renegotiate its essential elements. In December, the minister concluded there was not sufficient agreement among the bands to consider the agreement-in-principle ratified. Negotiations recommenced in 1985 and are continuing.

5.3.2 Dene/Metis Claim

In Canada, there are approximately 8,000 status Indians descended from the several Dene tribes and about 5,000 non-status Indians and Metis in the Mackenzie Valley area. In 1899, the Indians in the southern area signed Treaty No. 8 and the remainder signed Treaty No. 11 in 1921. Half-breed settlements were entered into with the Metis through scrip commissions operating parallel to the treaty commissions. The Dene Nation considers Treaty No. 8 and No. 11 to be treaties of peace and friendship and not surrenders of land. The government, while maintaining that the treaties effected a surrender of title, agreed to negotiate a comprehensive settlement on the grounds that the provisions of the treaties have not been fully implemented.

In 1976, the Dene Nation submitted a land claim, followed in 1977 by the claim of the Metis Association of NWT. Prolonged difficulty was encountered in establishing joint Dene/Metis positions and initiating negotiations. However, an improved working relationship developed in 1983 with the establishment of a single claims secretariat. During 1983, an interim agreement was reached on eligibility and enrolment. An overlap agreement between the Minister of Indian and Northern Affairs, the Dene/Metis and the Committee for Original Peoples' Entitlement (COPE) was signed on February 9, 1984.

The Dene/Metis and the Inuvialuit have since worked out reciprocal arrangements pertaining to wildlife and an agreement between the government and the Dene/Metis on other aspects of the overlap is nearing completion. An agreement on wildlife harvesting and management was virtually complete in January 1985 but has not been initialled pending review of certain provisions. The Dene/Metis tabled their position on lands and resources in April 1985, and discussions about this began in May.

5.3.3 The Inuvialuit (Western Arctic) Claim

The Committee for Original Peoples' Entitlement (COPE), representing approximately 4,500 Inuvialuit living in six communities in the Western Arctic Region and originally part of the general Inuit claim, submitted a separate claim in May 1977 in the light of anticipated pipeline construction in their area of interest. An agreement-in-principle was signed by COPE and the federal government on October 31, 1978. It dealt with land, wildlife, financial compensation, eligibility, corporate structures and economic and other measures. In May 1979, agreement was reached on 85 per cent of the remaining lands over which the Inuvialuit would have surface rights. Negotiations towards a final agreement were interrupted during the May 1979 and February 1980 elections and during the ensuing government's review of claims policy. Attempts to resume negotiations were unsuccessful until November 1982, when a series of meetings culminated in the preparation of an aide mémoire which identified the agreed-upon major elements remaining to be negotiated.

Formal negotiations with the Inuvialuit began on January 20, 1983. There was extensive discussion of contentious issues arising from the agreement-in-principle. A proposed final agreement was initialled by the chief negotiators for Canada and COPE in December 1983. The final agreement was approved by Cabinet in March 1984 and subject to claimant ratification which was completed in May. Parliament subsequently passed the Western Arctic (Inuvialuit) Claims Settlement Act on June 26, 1984. It was proclaimed on July 25, 1984. A secretariat was established within the Corporate Policy sector of the department in August 1984 to oversee implementation of the Act.

Under the Western Arctic settlement, the Inuvialuit will receive specific rights and benefits in exchange for relinquishing their interests based upon traditional use and occupancy. These rights and benefits will include land, cash compensation ($45 million in 1977 dollars), wildlife harvesting and management, economic measures (including a $10 million Economic Enchancement Fund) and Inuvialuit participation on advisory boards dealing with land use planning and environmental management. The Inuvialuit have also signed bilateral agreements with the Council for Yukon Indians, the Dene/Metis and the Tungavik Federal of Nunavut resolving their overlapping interests in the Inuvialuit Settlement Region.

With reference to the relationship of the Western Arctic agreement to territorial interests as a whole, laws of general application relating to private property will apply to all Inuvialuit lands (13,000 square kilometres with full surface and subsurface title; 78,000 square kilometres excluding oil, gas and specified mineral rights).

The government will continue to regulate the safety of development activities and will be responsible for environmental management. Inuvialuit lands will remain subject to easements and rights of way which existed as of July 13, 1978. The public will have a right of general access along navigable rivers and the right to cross Inuvialuit lands to reach other lands. While Inuvialuit lands may be leased, they cannot be sold except to other Inuvialuit or to the Crown. In the event Inuvialuit lands are needed for public purposes, they can be so acquired subject to the provision of alternative lands or financial compensation. Inuvialuit lands will be exempt from property tax but improvements, as well as proceeds from development of Inuvialuit lands, will be taxable in accordance with the laws of general application.

5.3.4 Tungavik Federation of Nunavut (TFN) Claim

The Tungavik Federation of Nunavut (TFN), formed in summer 1982 to take over the claims negotiation role of the Inuit Tapirisat of Canada (ITC), represents approximately 15,000 Inuit in central and eastern NWT. The Inuit claim to the area was first presented by ITC in February 1976 and has since undergone a number of revisions.

Early negotiations resulted in little progress because of debate over establishment of a new territory of Nunavut. Following meetings with the Minister of Indian and Northern Affairs in 1980, the Inuit agreed to proceed with land claims negotiations on the understanding that their aspirations for Nunavut would be dealt with outside land claims. Intensive negotiations got under way in late 1980, resulting in the initialling of wildlife provisions of an agreement-in-principle in October 1981, subject to review by the government and by the Inuit. Following this review, the amended provisions were reinitialled by the government and TFN in May 1986.

A government decision in November 1982 approving the principle of division of NWT, (and consequently the possible establishment of Nunavut) created a favourable climate for further progress towards a land claim settlement.

Since 1982, 14 components of an overall agreement-in-principle and two joint position papers were initialled on lands and resources topics. They include provisions dealing with purposes and principles of Inuit land identification, parks and conservation areas, Inuit employment in government, land use planning and water management.

Negotiations continue on land and resource development issues.

5.4 Native Organizations North of 60a/°N

5.4.1 Objectives

The settlement of claims has from the outset been a central concern of every native organization north of 60a/°N. It has not, however, been the sole function of any of them. Every organization seeks also to preserve and promote the culture and language of its members, to promote greater communication and self-awareness among them, to develop leadership and to represent the political and economic interests of its members in every possible sphere. Native organizations have usually obtained intervenor status at public hearings (to assess the impact of major developments) or at regulatory hearings. The intervention of native organizations at the Mackenzie Valley Pipeline Inquiry is perhaps the best known example, but it is now usual for these organizations to make representations in such forums as parliamentary committees, the Canadian Radio-Television and Telecommunications Commission (CRTC), the Canadian Transport Commission (CTC), the National Energy Board (NEB) and the Territorial Water Boards.

Native organizations have worked together with other political bodies or groups such as the NWT Legislative Assembly and southern environmental interests. They have frequently made common cause with each other, although there is at present no federated body representing the interests of all groups north of 60a/°N.

The larger organizations now have dozens of people on their payrolls at head office as well as field staff in various communities. Some maintain regional offices and an Ottawa office. Native organizations have thus become significant employers, especially of native people, although each also employs non-native staff. Native organizations are thus playing a significant role in helping natives develop administrative, clerical and political skills.

5.4.2 Inuit Circumpolar Conference (ICC)

This international organization was founded in 1977 to promote the rights and interests of the Inuit of Alaska, Greenland and Canada. Resolutions passed at subsequent meetings in Nuuk, Greenland in 1980, in Frobisher Bay in 1983, and in Kotzebue, Alaska in 1986 dealt with culture, education, environment, wildlife, development, health and welfare, and policy issues. In 1983, the United Nations granted the ICC non-governmental organization status. In 1986 the General Assembly was held in Kotzebue, Alaska, where the focus was on the adoption of Arctic policy principles.

5.4.3 Other Developments

The roles and responsibilities of native organizations north of 60a/°N have become sufficiently diverse that each has created a number of separate organizations or agencies. Some of these organizations, such as regional housing or development corporations, fulfil primarily economic functions. Others are primarily cultural in purpose and are concerned with areas like communications, the arts and language. Following a settlement of claims, the role of virtually every native organization can be expected to change and to expand.

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6.0 Government

6.1 Territorial System of Government

In their everyday operations, the territorial governments closely resemble those of the provinces. The area of legislative authority assigned to the two territorial councils practically duplicates that assigned to the provincial legislatures under the *Constitution Act (BNA Act)*, the important exceptions being authority over lands and resources (except wildlife) and the power to legislate regarding the territorial constitutions.

The fundamental distinction between provincial and territorial government is the differing source and nature of the territorial constitutions as opposed to provincial constitutions. Provincial constitutions, which define the powers of the legislative and executive branches of government as well as the division of legislative power between the federal and provincial governments, are entrenched in the *Constitution Act* and are not subject to change by the federal government. The territorial constitutions, the *Yukon Act* and the *NWT Act*, however, are federal statutes legally subject to change at the will of Parliament.

Within themselves, these *acts* contain aspects furthering the distinction. They vest executive authority in federally appointed commissioners who administer the governments of the territories under instructions given from time to time by the Governor in Council or the Minister of Indian and Northern Affairs Canada. Thus, in law if not in practice, the commissioners fill two roles: each is the chief executive officer of a territory. At the same time, each is the representative of the federal government and in this latter capacity can be instructed to follow federal government directives. For instance, the Minister of Indian and Northern Affairs may instruct a commissioner to decline to give assent to territorial legislation. The lieutenant governors in whom executive authority in the provinces is formally vested are also federally appointed, but they are not, in practical terms, subject to federal direction.

Lieutenant governors represent the Crown within provincial constitutions. A commissioner does not represent the Crown but merely the federal government. In his or her vice-regal capacity, a lieutenant governor is legally bound to follow the advice of the provincial Cabinet which, in turn, is responsible to the legislature. While a commissioner may be instructed by the Governor in Council or the Minister of Indian and Northern Affairs to be bound by the advice of the executive council in his or her territory, he or she can also be instructed by the same federal authorities not to be so bound.

This distinction has important ramifications for the level of responsible government existing in the territories. In the provinces responsible, government exists to the fullest extent. Executive action without exception is dictated by an elected Cabinet which is, in turn, responsible to an elected legislature. On a practical basis, the situation is almost the same in the territories, but the theoretical possibility does exist that the commissioner may be directed by federal authorities to take executive action contrary to the advice of the executive council.

In 1979, the Commissioner of Yukon was instructed by the Minister of Indian and Northern Affairs to act, essentially, as a lieutenant governor (i.e., to absent himself from the day-to-day affairs of government and to devolve most of his executive functions upon, and to be bound by the advice of the elected government of Yukon). Since then, the Commissioner has effectively been directed by the wishes of his Executive Council.

Instructions for NWT have not yet carried the devolution of *de facto* responsible government to quite the same extent. The Commissioner still takes an active part in the government of the territory. However, in 1975 he was directed to seek the advice of his Executive Committee (now Executive Council) and to give that advice the fullest possible consideration. The Territorial Council of 1975 resembled a Legislative Assembly and so styled itself. A Speaker was chosen by the members, and three elected members were given Executive Committee portfolios. The Executive Committee, which holds Cabinet-like responsibilities in relation to the Territorial administration, had formerly been made up of only the Commissioner, the Deputy Commissioner and the Assistant Commissioner. In 1979 an election resulted in a new Legislative Assembly being enlarged to 22 seats. This Ninth Assembly brought a large amount of legislation into law. The members also lobbied successfully for including aboriginal rights in the Canadian Constitution.

The term of office of the Ninth Assembly ended in autumn 1983. Based on recommendations made by the NWT Electoral District Boundaries Commission, the number of electoral districts was increased from 22 to 24 in preparation for a November general election. The 24 members formed the Tenth Assembly which began a four-year term in January 1984. Further powers were devolved from the Commissioner to the Leader of the Elected Executive in 1986. The Leader now chairs the Executive Council and has responsibility for the Department of Personnel; these two functions were held previously by the Commissioner. The Minister of Finance is chairperson of the Financial Management Board, replacing the Commissioner.

Government in the territories also differs from the provinces in the legislative sphere. While the legislative powers of the territorial legislatures closely parallel those of provincial legislatures, these powers are devolved by Parliament and can always, legally, be removed. Provincial areas of legislative jurisdiction are entrenched. Territorial legislative jurisdiction, being defined by federal legislation (*Yukon* and *NWT Acts*) is always subject to be overridden by contrary federal legislation. The rare practical result of this is that if there is inadvertent conflict between territorial and federal legislation, the territorial legislation is automatically inoperative.

On November 26, 1982, the Minister of Indian and Northern Affairs announced a Cabinet decision to foster greater strength and responsibility in the political institutions of Yukon and NWT. The new policy renewed the federal government's longstanding commitment to responsible government in the territories and stated that provincial status was not a realistic objective in the foreseeable future because of the small population base, vast area, an undeveloped and narrowly based economy and the need of the federal government to protect Canada's national interests.

The federal government has introduced a formula-based approach to provide financial support to the territories to allow improved fiscal planning and enable northern governments to assume full accountability for their budget decisions. To further strengthen the territorial governments and help them deal with the related costs of resource development, the federal government has also committed itself to give the territories a certain level of discretionary revenue.

The *Yukon Act* will eventually be amended to legally confirm the steps already taken toward achieving responsible government in Yukon. Analagous steps in NWT await resolution of such fundamental issues as division.

In response to the longstanding political aspirations of both native and non-native residents of NWT, in November 26, 1982, the federal government also announced its acceptance in principle of the concept of subdivision of the vast area which presently constitutes the territory. These aspirations had led the NWT Assembly to hold a plebiscite on the issue on April 14, 1982. A majority of the respondents subsequetly voted in favour of division. Federal willingness to ultimately divide NWT will be dependent upon continued support for division by a majority of its residents, the achievement of a consensus among citizens of NWT and agreement with the federal government on the location of boundaries and the distribution of powers between territorial, regional and community levels of government. The NWT Constitutional Alliance (a group formed of representatives of the major native groups and the Legislature and Government of the NWT) will be taking the lead in consultations and deliberations aimed at achieving this consensus.

6.1.1 Territorial Revenue Structure

6.1.1.1 Federal Grants

A new method has been adopted to finance public expenditures for Northwest Territories and Yukon and brings the territories closer to full responsible government. The new approach is based on a fixed tax rate formula which is being tested in a three-year trial period which began in 1985-86.

Until 1985-86, the territorial governments received most of their funding from the federal government through annually negotiated grants. The fixed tax rate formula involves the indexing of the territorial government base year expenditures (1982-83) by an escalator derived from the growth rate of provincial and local expenditures. This amount is then offset by territorial revenues at fixed tax rates which result in the grant level. One advantage of this approach is the elimination of the need to negotiate the grant level.

Although 1986-87 funding level estimates under the current system are not final, a comparison can be made using current year (1986-87) allocations, with formula-based forecasts for the previous year (1985-86).

	NWT (Millions)	Yukon (Millions)
Funding using formula based on forecasts for 1986-87	$476.4	$159.3
Funding using formula based on forecasts for 1985-86	$447.4	$147.0

6.1.1.2 Territorial Tax Base

The major revenue source of the two territories (as indicated above) is a transfer from the federal treasury. These transfers fund almost 60 per cent of the territorial expenditure budget in Yukon and 70 per cent in NWT. The remaining revenues come from personal and corporate income taxes, which are now levied directly by the territorial assemblies, other direct taxes such as those on alcoholic beverages, real property taxes and various licences, and fees the territory imposes in the same way a province does.

The remaining portion of the territorial expenditure budget is paid for through the sale of services by the territorial government and the federal share of the same cost-shared programs enjoyed by provinces.

6.2 Structure and Political Development

6.2.1 Constitutional History and Evolution of Yukon and NWT

In 1870, with the purchase from the Hudson's Bay Company of the land then called the North-West Territories, Canada acquired 70 per cent of its present area. The building of a railroad to the Pacific and the resulting expansion of the Canadian population westward led to the establishment, in the short space of 35 years, of the provinces of Manitoba, Saskatchewan and Alberta, each with a responsible government in the parliamentary tradition. Full resource and land ownership was transferred to the new provinces 25 years later. The transfer to Ontario and Quebec of the parts of the original North-West Territories which abutted on those provinces was completed in 1912. What remained of the original North-West Territories became present-day Northwest Territories and Yukon, which comprise close to 40 per cent of the area of Canada.

The Klondike gold rush of 1898 was most important in the early history of Yukon, since the influx of miners and settlers was great enough to justify the establishment of the Yukon Territory in 1898. The *Yukon Act* provided for a Commissioner and Council, appointed by Ottawa, who were to administer Yukon subject to instructions from the Governor in Council. By 1908, all the members of the Council were elected and the Commissioner in Council legislated in the same manner as a provincial legislature. After the gold rush ended in 1910, the population of Yukon declined, the size of the Council was reduced and there was little significant constitutional development again until the 1950s. The evolution which took place from 1950 to 1970 amounted essentially to enlargement of the Council to reflect population growth and the establishment of an Advisory Committee on Finance to the Commissioner which consisted of three counsellors recommended by the Council.

The residue of the North-West Territories, the part we now call Northwest Territories, never saw the early surge of constitutional growth which took place in Yukon. It remained sparsely populated and did not experience the same burst of development. The Commissioner and Council of NWT were all federal officials until after World War II and it was only in 1951 that elected members of the Council were added. From 1905 until 1963, the Deputy Minister of the Department of the Interior and its successor departments served also as Commissioner of NWT it was not until 1967 that the commissioner became resident in NWT.

From 1950 to the present, the federal attitude has been one of tacit and at times explicit encouragement of political and constitutional maturation in the territories. During the past decade the pace of constitutional evolution has accelerated. There have been significant steps toward responsible government and growing autonomy from Ottawa.

In 1971, as a result of pressure from the Council, the Commissioner of Yukon was instructed by the Minister of Indian and Northern Affairs to establish an Executive Committee consisting of the Commissioner, two assistant commissioners (one a federal and the other a territorial civil servant) and two elected Council members who were to be full-time executive officers paid from the Yukon consolidated revenue fund. The elected Committee members were to be appointed on the recommendation of the Council and were subject to its recall. Although the Commissioner remained ultimately responsible for the administration of government, as provided for in the *Yukon Act*, he was instructed to give the fullest possible consideration to the advice of the Executive Committee, particularly to that of the elected members. The elected members of the Committee were each to be assigned administrative responsibility for one or more departments and, having taken part in the formulation of the Committee's legislative program, they sponsored and defended bills put before Council and acted very much like a Cabinet.

In 1979, by ministerial instruction to the Commissioner, the installation of *de facto* responsible government in Yukon was completed. The Executive Committee was replaced by an Executive Council which now consists entirely of elected representatives. A political party system has emerged, with the leader of the majority party selecting members of the Executive Council and assigning portfolios. The Commissioner no longer takes part in the deliberations of the Executive Council and is bound by its advice in all areas for which the Commissioner in Council has jurisdiction under the *Yukon Act*, except for matters of special federal interest and responsibility. Control of the territorial budget rests entirely with the Executive Council. Thus, through the use of instructions to the Commissioner, responsible government (in which the executive is responsible to an elected legislature) has been established in Yukon. The Commissioner's role has been reduced from that of chief administrator to one that closely parallels that of a provincial lieutenant governor. However, these developments are not yet reflected in the *Yukon Act* which will be amended only after full consultation with the native people.

In NWT as well, measures have been taken by the Minister of Indian and Northern Affairs to move that territory toward responsible government, although this evolution has not proceeded as quickly in NWT as it has in Yukon. In 1970, the Executive Committee of the Government of Northwest Territories (GNWT) consisted entirely of federal and territorial officials — the Commissioner the Deputy Commissioner and an Assistant Commissioner. Today, the Executive Council is composed of a Commissioner, and elected members who head the various departments of government. In essence, the status and relationship of the Commissioner and the Executive Council replicates what was found in Yukon prior to the 1979 instructions of the Minister. The federal government is committed to responsible government, and it is generally assumed in NWT that the roles of the Commissioner and the Executive Council will ultimately follow a similar evolutionary process as occurred in Yukon.

6.2.2 Governmental Institutions of the Territories

6.2.2.1 The Commissioner — Yukon and NWT

By virtue of section 3 of both the *Yukon Act* and the *NWT Act*, the Governor in Council appoints the commissioners of both territories as chief executive officers. Before the recent shift toward responsible government in both territories, the commissioners were the preeminent governmental forces in the territories. However, since the evolution of the Executive Council, Yukon and Executive Committee (now Executive Council) in NWT, the role of the commissioners has tended to approach more closely that of the lieutenant governors in the provinces.

Yukon has an Administrator who exercises the powers of the Commissioner in his absence or illness. In NWT, this function is performed by a Deputy Commissioner. Effective April 12, 1984, Agnes Semmler of Inuvik was appointed Deputy Commissioner of NWT. Contrary to the role of the previous Deputy, her appointment is on a part-time, stipendiary basis only, and her duties are routine. She has no political involvement, and her position is comparable to that of the Administrator in Yukon.

6.2.2.2 Legislative Assembly — Yukon

The Yukon Council, popularly referred to as the Legislative Assembly, consists of sixteen elected members, seven of whom represent districts in Whitehorse. In May, 1985, the Assembly consisted of eight New Democrats, six Progressive Conservatives and two Liberals. The four standing committees of the Legislature include the Members' Services Board, the Rules, Elections and Privileges Committee, the Public Accounts Committee and the Statutory Instruments Committee. There are also special committees on constitutional development and privileges.

The Clerk Of the Assembly is Patrick Michael. His office provides advice on parliamentary procedure to the Speaker, the Chairperson of the Committee of the Whole and individual members of the Legislative Assembly. Administrative and support services are also provided to the assembly during sessions and to standing and special committees and individual members on a day-to-day basis.

As of August 1986, Yukon's Legislative Assembly members were:

William Brewster (PC) — Kluane
Roger Coles (Lib) — Tatchun
Bea Firth (PC) — Whitehorse Riverdale
Margaret Joe (NDP) — Whitehorse North Centre
Sam Johnson (NDP) — Campbell
Norma Kassi (NDP) — Old Crow
Roger Kimmerly (NDP) — Whitehorse South Centre
Dan Lang (PC) — Whitehorse Porter Creek East
Piers McDonald (NDP) — Mayo
Jim McLachlan (Lib) — Faro
Alan Nordling — Whitehorse Porter Creek West
Tony Penikett (NDP) — Whitehorse West
Willard Phelps (PC) — Hootalinqua
Doug Phillips (PC) — Whitehorse Riverdale North
David Porter (NDP) (House Leader) — Watson Lake
Art Webster (NDP) — Klondike

Speaker: Sam Johnson.

6.2.2.3 Legislative Assembly — NWT

The NWT Council, popularly referred to as the Legislative Assembly, consists of 24 elected members (November 24, 1983 election). The speaker of the NWT Assembly is Donald M. Stewart (Hay River). In January 1983, the Assembly consisted of eight Inuit, five Dene/Metis and nine non-natives — a majority of native members. There are no political party affiliations officially in the NWT Assembly.

The Clerk of the Assembly is David Hamilton. There is also a small staff which provides administrative and support services to the members. Simultaneous translation services in Inuktitut and the Dene language are provided, as necessary, for sessions of the Assembly. Sessions used to be rotated between Yellowknife and regional centres in an attempt to bring government to the people, but this practice was discontinued in 1986, primarily because of the high cost of travelling.

As of July 1986, the composition of the Legislative Assembly of NWT by constituency was as follows:

Speaker: Donald Stewart

Members

Michael Angottitauruq	Natilikmiot
Moses Appaqaq	Hudson Bay
Joe Arlooktoo	Baffin South
Mike Ballantyne	Yellowknife North
Thomas Butters	Inuvik
Nellie Cournoyea	Nunakput
Tagak Curley	Aivilik
Elijah Erkloo	Amittuq
Samuel Gargan	Deh Cho
Eliza Lawrence	Tunedhe
Robert MacQuarrie	Yellowknife Centre
Arnold McCallum	Slave River
Bruce McLaughlin	Pine Point
Richard Nerysoo	Mackenzie Delta
Pauloosie Paniloo	Baffin Central
Dennis Patterson	Iqaluit
Red Pedersen	Kitikmeot West
Ludy Pudluk	High Arctic
Ted Richard	Yellowknife South
Nick Sibbeston	Nahendeh
Donald Stewart	Hay River
John T'Seleie	Sahtu
James Wah-Shee	Rae-Lac La Martre
Gordon Wray	Kivallivik

6.2.2.4 *Executive Council — Yukon*

The Executive Council was established by the Commissioner in 1979 as a result of instructions from the Minister of Indian and Northern Affairs. It does not have legal status, since the *Yukon Act* still vests executive authority in the Commissioner exclusively. The Executive Council has collective responsibility for policy and decision making and the general direction of the Yukon Territorial Government. The Executive Council is assisted in its decision-making by the cabinet committees on finance and legislation and the permanent advisory council. The Executive Council Office provides policy analysis and review, research, coordination and administrative support to the offices of the government leader, ministers, internal auditor and commissioner.

6.2.2.5 *Executive Council — NWT*

The Executive Council is the senior decision-making body of the Government of Northwest Territories. The Commissioner continues to be the formal head of government and chairs the Executive Council. The Council is made up of the Commissioner, a civil servant and eight elected Executive members, all of whom are MLAs for various constituencies. One member is chosen as government leader and is the deputy chairman of the Executive Council. Each elected Executive member is minister of a department or departments.

Executive members are collectively responsible for decisions on policy and programs, for relations with federal and provincial governments and for the general conduct of government in NWT.

6.2.2.6 *The Judicial System in NWT and Yukon*

Both Yukon and NWT have been granted responsibility for the administration of justice with the exception of criminal prosecutions. The *Criminal Code* specifies that the Attorney General for Canada is also the Attorney General for the two territories. There is one resident Supreme Court judge in Yukon and two in NWT as well as territorial courts, magistrates' courts and numerous justices of the peace. Supreme Court judges of NWT are ex-officio members of the Supreme Court of Yukon and vice-versa.

The Court of Appeal for Yukon comprises judges of the B.C. Court of Appeal, the Supreme Court judge from Yukon and a Supreme Court judge from NWT. The Court of Appeal for NWT is composed of judges of the Alberta Court of Appeal, the Supreme Court judge from Yukon and a Supreme Court judge of NWT.

There has been an attempt in recent years to appoint local people as justices of the peace in the communities, and a native courtworkers program has attempted to bring the criminal justice system in the North more in tune with the social and cultural realities of the two territories.

6.2.3 Political Institutions

6.2.3.1 *Party System*

While federal elections in the North have long been conducted along traditional partisan lines, the party system is in its infancy at the territorial level. This has in part been the result of the importance of personality politics in the sparsely populated North.

In the 1985 Yukon election, all 16 elected candidates ran as representatives of one of Canada's three major parties. The New Democrats won a minority government, and their leader chose the Executive Council from members of his party. The political process in Yukon now operates on the principles of party government found in southern Canada. Partisan politics and the party system appear to have become permanent features of political life in Yukon.

In NWT, this is not the case. For the most part, southern partisan distinctions have had little relevance to NWT at the territorial level. Secondly, native involvement in territorial politics is and has been more relevant and significant in NWT than in Yukon. The imperatives of partisan politics have, to a certain extent, clashed with the imperatives of native political culture. In the absence of partisan politics in the Legislative Assembly, legislative alliances have developed along regional, ethnic, philosophical or positional lines.

6.2.3.2 Interest Groups

Like other jurisdictions, Yukon has a number of organized interest groups active in the political process. These organizations present briefs to various inquiries and other forums, take positions and lobby government on various issues of importance to the political and economic development of Yukon. Some of the more important groups are:

Association of Yukon Communities
Consumers Association of Canada
Council for Yukon Indians
Klondike Placer Miners' Association
Klondike Visitors' Association
Whitehorse Chamber of Commerce
Yukon Chamber of Mines
Yukon Conservation Society
Yukon Federation of Labour
Yukon Historical and Museums Association
Yukon Livestock & Agricultural Association
Yukon Outfitters Association
Yukon Status of Women Council
Yukon Trappers Association
Yukon Visitors Association

There are also many interest groups in NWT, most significant of which are the native organizations which will be discussed in the next section. The NWT Chamber of Mines has been a vocal and articulate supporter of mining exploration and development and the Chamber of Commerce is active in the larger communities in the territory. In the smaller communities, hunters and trappers associations are fairly active.

6.2.3.3 Native Organizations — Yukon

The Council for Yukon Indians

Yukon Indians first broached the idea of a settlement in 1902 when Chief Jim Boss wrote to the Government of Canada asking for a treaty to protect his people from the effects of the coming of non-natives during the Klondike gold rush. Yet, for many years no treaty was negotiated and the Indian people remained unorganized. In 1958, the Yukon Indian Advancement Association was formed by a group of concerned Indians and non-Indians. One of its major accomplishments was the Skookum Jim Friendship Centre.

In 1969, the Indian band chiefs established the Yukon Native Brotherhood (YNB). When funds became available, the YNB's first objective was to document the needs and aspirations for a Yukon Indian land claims settlement. In 1971, the Yukon Association of Non-Status Indians (YANSI) was formed to represent the interests of Yukon's non-status Indians that is, those Indians not covered under the *Indian Act*.

In January 1973 the YNB, supported by YANSI, presented the Prime Minister of Canada with a statement of grievances and principles for negotiating a land claim. This historic document was entitled "Together Today for our Children Tomorrow". It was the first time that a group of Canadian people of native ancestry had prepared and presented such a document. Based on the principle that all the Indians of Yukon had the right to develop their lives fully in a society where their economic, cultural and social wishes and needs were capable of being met, the statement outlines aboriginal rights, defines what it means to be Indian and claims the traditional homeland. When the federal government accepted the document as a basis for settlement by negotiation of the land claims of the Yukon Indians the need arose for an organization founded on the document's principles, an organization which could negotiate with the federal government to settle the claim.

The Council for Yukon Indians (CYI) was established late in 1973 to represent both status and non-status Indians in the negotiation of a joint land claim. At this same point, both YNB and YANSI were occupied with their own separate responsibilities and had neither the time nor the resources to undertake negotiations.

In 1980, a historic occasion in the history of Canadian Indian political development took place when the YNB and YANSI rejected the provisions of the *Indian Act* and amalgamated under the name of the Council for Yukon Indians. The CYI assumed all the functions of the two former organizations.

The executive of the CYI is elected every two years in Yukon-wide elections. The CYI has a 17-member board of directors — 12 chiefs plus the chairperson and 4 vice-chairpersons. All board decisions must be ratified by the 48-member General Assembly which meets approximately four times a year.

As an organization, the CYI has developed expertise in a number of areas, including social and educational policies, economic development, communications and resource mapping, to mention a few. The chairperson of the CYI is Mike Smith.

6.2.3.4 *Native Organizations — NWT*

There are basically four native groups in the NWT today. Each is seeking a settlement of land claims and each has evolved an organization to pursue the goal. The specifics of land claims will not be addressed here as they have been described elsewhere in this manual (section 5). The organizations and their backgrounds are as follows.

Inuit Tapirisat of Canada (ITC) (The Inuit Brotherhood)

This organization was established in 1971 to provide the Inuit with a single voice on matters of mutual concern. The organization is a federation of seven regional affiliates in Quebec, Labrador and NWT.

Committee for Original Peoples' Entitlement (COPE)

This organization was formed by the western Arctic Inuit in 1970, partly in response to an upsurge of exploration and anticipated development of petroleum resources in the Mackenzie Delta and Beaufort Sea. COPE opted to seek a separate land claims settlement which was put into effect in 1984. It remains a regional affiliate of ITC.

Dene Nation

The Indian Brotherhood of NWT was originally formed in 1970 by the major Indian bands of the Mackenzie Region. While the original intention of the brotherhood was to oppose proposed changes in the *Indian Act* which would have reduced Treaty rights, the organization quickly shifted its focus to a concern with land claims and political autonomy. Reconstituted in the late 1970s as the *Dene Nation*, the organization is today an extremely influential and powerful voice for the Indians of the Mackenzie Valley and is mainly engaged in land claim negotiations.

Metis Association of NWT

The Metis Association was formed as the NWT affiliate of the Native Council of Canada in 1973. The organization had taken an active role in promoting development in the Mackenzie Valley and encouraging the participation of the Metis in such development projects. Originally at loggerheads with the Dene Nation, the Metis have now agreed to work with the Dene in seeking a just settlement of land claims in the valley, although differences between the groups continue to exist.

6.2.4 Bureaucracy in the North

In the 1960s, the federal government began a policy of gradual devolution of administrative authority to the territorial councils. Naturally this meant that there would have to be a territorial public service to carry out the ordinances of those councils. Since then, we have seen a fairly rapid growth of the territorial bureaucracy, as federal public servants tended to transfer to the territorial services with the programs they administered.

6.3 Government Services

6.3.1 Federal Government Services

The federal government provides services in Yukon and NWT through several departments and agencies. The function and responsibilities of each are described briefly below.

6.3.1.1 Agriculture Canada

Agriculture Canada provides technical advice in the North on agricultural production, soil and vegetation, as well as research and consultative services in the area of insects and diseases control.

6.3.1.2 Employment and Immigration Canada

The department operates employment centres in the North and administers unemployment insurance and other federally funded programs directed to manpower and employment concerns.

It maintains employment centres (CECs) in Yellowknife, Hay River, Inuvik and Frobisher Bay in NWT, and in Whitehorse, Yukon. There are sub-offices in Fort Simpson, Fort Smith and Rankin Inlet, NWT. Branch offices out of Yellowknife serve about 30 smaller settlements. In Yukon, branch CEC offices are located in Watson Lake, Haines Junction, Dawson City and Mayo. There is a year-round Canada Immigration Centre in Whitehorse and a seasonal office (May to September) in Beaver Creek.

Services include:

- information on available jobs;
- recruitment of workers, both locally and Canada-wide;
- referral of qualified workers to available jobs;
- counselling workers on employment and related matters, including how to look for their own jobs;
- counselling and other services for women, natives, the handicapped and persons with special needs;
- specialized services for students;
- aptitude, interest, skill and ability assessment;
- referral to diagnostic services;
- referral to training;
- mobility and relocation assistance;
- collection and dissemination of labour market information;
- itinerant service to outlying communities;
- support of community efforts to meet local labour market needs; and
- temporary income support to workers between jobs.

Outreach Program

The Outreach Program is designed to provide employment-related services to people who, for a variety of reasons, are unable to fully utilize services provided by the CECs. Typical target groups are residents of isolated communities, native people, chronically unemployed persons and individuals who experience difficulty in entering or reentering the labour market.

6.3.1.3 Canada Mortgage and Housing Corporation (CMHC)

CMHC administers programs under the *National Housing Act* insuring mortgage loans and providing financing to territorial housing corporations and non-profit organizations. It has offices in Whitehorse and Yellowknife.

6.3.1.4 Canada Post

Canada Post provides mail service to the area north of 60a/°N through 72 post offices, some of which are run by individual firms or organizations on behalf of Canada Post Corporation.

6.3.1.5 Canadian Broadcasting Corporation

The Northern Service of the CBC provides broadcasting service to meet the special needs of Inuit, Dene, Metis and non-native northerners. There are production centres in Yellowknife, Inuvik, Frobisher Bay, Rankin Inlet and Whitehorse.

6.3.1.6 Canadian National Railways

CN provides the North with transportation and communications services through the rail link to Hay River and the operations of NorthwesTel.

6.3.1.7 Canada Oil and Gas Lands Administration

The Canada Oil and Gas Lands Administration (COGLA) was established to administer northern oil and gas rights and associated oil and gas activities on behalf of the Minister of Indian and Northern Affairs. The regional office at Yellowknife, NWT, carries out administrative duties under COGLA's jurisdiction for NWT.

6.3.1.8 *Canadian Transport Commission (CTC)*

The Air Transport Committee of the CTC licenses and regulates air carriers, surveys operations and advises the federal Minister of Transport on civil aviation matters in the territories.

The Water Transport Committee administers the *Transport Act* in the territories, licenses carriers and approves tariffs for commercial water carriers.

6.3.1.9 *Department of Communications (DOC)*

DOC promotes efficient northern communications through offices in Yellowknife, Fort Smith and Whitehorse.

6.3.1.10 *Crown Assets Distribution Centre (Supply and Services Canada)*

The centre acts as agent of the Crown in the sale of surplus federal assets. By agreement it also is responsible for sale of US surplus at DEW Line sites and also the surplus assets of NWT.

6.3.1.11 *Eldorado Nuclear Limited*

Eldorado is a Crown company which explores for mines and refines uranium.

6.3.1.12 *Energy, Mines and Resources Canada (EMR)*

Through various divisions, EMR does geological survey work; provides information on the earth's magnetic field and on earthquakes; collects and assembles data on variations in gravity; studies the dynamics of the earth; administers and manages mineral resources in Hudson Bay and Hudson Strait; conducts research on steels and other metals exposed to arctic conditions; develops and coordinates a program to produce and use remotely sensed data; assists in the development of mineral resources; provides geodetic, topographic and geographic information; carries out land surveys; produces, maintains and distributes maps; and conducts scientific investigations unique to the Arctic.

6.3.1.13 *Environment Canada*

The Environmental Protection Service Ensures *enforcement of most of the federal government's* regulations concerning environmental protection, operating through district offices in Whitehorse and Yellowknife. However, the Northern Renewable Resources Branch of INAC is the lead agency for environmental regulations in the North, under the *Territorial Lands Act*, the *Arctic Waters Pollution Prevention Act*, the *Dominion Water Power Act* and other such legislation.

The Atmospheric Environment Service (AES) provides information, consultation and advice on past, present and future atmospheric ice-and sea-state conditions. AES accomplishes this through its observation and communications networks and arctic forecast systems. Its Field Services Directorate provides up-to-date weather and marine information to most of the larger northern communities. It operates five networks for data acquisition, an Arctic Weather Centre, a centralized analysis and prognosis centre, satellite readout stations, contract stations and scientific support offices.

The Environmental Management Service, through the Canadian Wildlife Service, manages and administers programs concerning migratory birds, coordinates federal and territorial action on wildlife programs and surveys and inventories and conducts biological research in the Arctic.

The Inland Waters Directorate carries out studies on surface and ground water, snow, ice and permafrost.

The Lands Directorate researches and provides data on land use, coordinating departmental advice on the topic for other government agencies.

The Canadian Forestry Service advises and assists INAC on forestry operations and staff training, participates in environmental impact assessments, conducts forest research and prepares and compiles forestry statistical data.

Parks Canada plans and manages existing parks and evaluates areas and sites as potential parks and landmarks.

6.3.1.14 External Affairs Canada

External Affairs advises on matters having foreign policy implications, maintains a coordinating and operational role in matters of international law and policy relating to the Arctic, and negotiates with countries proposing activities in the North.

6.3.1.15 Federal Environmental Assessment Review Office (FEARO)

FEARO convenes panels of knowledgeable persons within and outside the federal public service who prepare guidelines for Environmental Impact Statements on projects requiring formal study and who review the resulting statements.

6.3.1.16 Department of Fisheries and Oceans (DFO)

DFO is responsible for fisheries research and management and oceanographic research. Fishing officers enforce regulations, inspect operations and perform limited management functions. Oceanographic investigations relate to the *Arctic Waters Pollution Act* and the *Ocean Dumping Control Act* and result in advice to other government departments or agencies. The Canadian Hydrographic Service conducts surveys, produces, distributes and maintains nautical charts and provides sailing directions and tide tables for northern regions.

6.3.1.17 Health and Welfare Canada Medical Services Branch

The branch provides and administers health care programs to all Yukon residents, serving as the territorial health department. Costs are shared between the branch and the territorial government.

The branch provides acute treatment care to NWT except in centres such as Yellowknife, Hay River, Frobisher Bay and Fort Smith which are served by the territorial Department of Health. Both NWT and Yukon governments operate hospital and health care insurance plans. The Yukon plan is currently based on a premium; however, plans have been made to phase this out by mid-1987.

The Social Services Programs Branch, through the Canada Assistance Plan, contributes 50 per cent of territorial and municipal public assistance and welfare service expenditures, and makes consultant services available.

6.3.1.18 Indian and Northern Affairs Canada

Indian and Northern Affairs Canada carries out its northern responsibilities through two major programs, the Northern Affairs Program and the Indian and Inuit Affairs Program.

The Northern Affairs Program is made up of various branches: the Constitutional Development and Strategic Planning Branch and the Northern Resources and Economic Planning Branch. The responsibilities of each branch are as follows.

The Constitutional Development and Strategic Planning Branch develops and coordinates policies related to the department's activities in the North and collects, interprets and disseminates information on annual federal and territorial activities and expenditures related to Canada's North. It is involved in land claim negotiations and monitors the progress toward self-government. It also administers social and cultural programs, plans, coordinates and supports northern science, and is the focal point for strategic planning dealing with constitutional development, economic development and program transfers north of 60°.

The Northern Resources and Economic Planning Branch develops and recommends policies, strategies, plans and regulations for the management of renewable resources and for environmental protection and carries out an applied research program. The branch administers surface rights on Crown lands; manages and protects inland and offshore waters; provides forest fire protection; manages forest resources, and conducts environmental assessments of resource development proposals. The branch also manages the federal government's proprietary interest in minerals, including oil and gas; defines mineral potential; advises on development of mineral policy and legislation, and is responsible for the collection of mineral royalties.

The regional offices of the department are responsible for program delivery and also assist with policy development and coordination of program transfer initiatives. They also provide advice and training to the community and play a vital role in negotiations on such major issues as land claims, social and education programs, resource development and environmental management. The Northern Affairs Program has regional offices in both Whitehorse and Yellowknife and district offices in eight other Yukon communities and nine other NWT centres.

6.3.1.19 Regional Industrial Expansion

This department, formerly known as Industry, Trade and Commerce, plays a role in the industrial development of the natural resources of Canada's northern territories. It is also responsible for the Canadian Government Office of Tourism which consults with the tourism departments of the territorial governments, entering into agreements to cooperate in projects where there is mutual interest.

6.3.1.20 Department of Justice

The Minister of Justice appoints judges to the territorial Supreme Courts, while the department, with offices in Whitehorse and Yellowknife, directs court proceedings on behalf of the Crown under the *Criminal Code*, other federal statutes and territorial ordinances.

6.3.1.21 Labour Canada

Labour Canada administers the *Canada Labour Code* and is responsible in the federal jurisdiction for industrial standards (conditions of work, minimum wages, hours of work); health and safety of employees and industrial relations (collective bargaining, labour-management relations).

The department maintains an office in Whitehorse to serve both Yukon and NWT.

6.3.1.22 Department of National Defence

The Department of National Defence (DND) safeguards the sovereignty and independence of Canada. In the North, the department protects Canada against threats and challenges to its territory and contributes to security arrangements in concert with allies in North America and NATO.

DND supplements and supports civil departments and agencies in the North.

As of September 1984, Canadian Forces Units have been located in Yukon and NWT as follows: Northern Region Headquarters — Yellowknife Detachment; 440 Transport and Rescue Squadron Detachment — Yellowknife; 742 Communication Squadron Detachment — Yellowknife; Northern Region Headquarters — Whitehorse; Canadian Forces Station Inuvik; Canadian Forces Station Alert; Canadian Forces Base, Greenwood Detachment — Frobisher Bay; 764 Communication Squadron Detachment — Frobisher Bay.

DEW-Line (Defence Early Warning) Sites — (Air Command):

Main
Cape Perry
Cambridge Bay
Hall Beach
Cape Dyer

Auxiliary
Komakuk Beach
Shingle Point
Tuktoyaktuk
Nicholson Peninsula
Clinton Point
Cape Young
Lady Franklin
Byron Bay
Jenny Lind Island
Gladman Point
Shepherd Bay
Pelly Bay
Mackar Inlet
Longstaff Bluff
Dewar Lakes
Cape Hooper
Broughton Island

6.3.1.23 National Energy Board

The board regulates specific areas of the oil, gas and electrical utility industries in the public interest and advises government on the development and use of energy resources.

6.3.1.24 National Film Board (NFB)

NFB produces motion pictures, film loops, filmstrips, slide sets and still photo exhibits about the Canadian North, its people and their activities and its industries, resources and institutions, for distribution in Canada and abroad.

6.3.1.25 National Museums of Canada

National Museums help publicly owned museums in conservation, undertake research and rescue archaeology, document the cultural heritage of aboriginal peoples, contribute to the knowledge of animal species in Canada, maintain national collections of minerals and collect Pleistocine vertebrate material in Yukon in order to reconstruct vertebrate history of the region.

6.3.1.26 National Research Council (NRC)

NRC conducts research on the structural and thermal performance of roads, pipelines, building foundations and other structures on permafrost and sea ice; wind generation of electrical energy; on magnetic phenomena; ionospheric conditions; sea ice and icebreakers; and cosmic rays.

6.3.1.27 Northern Canada Power Commission (NCPC)

NCPC is concerned with planning, construction and management public utilities on a commercial basis. It is the principal producer of electrical energy and operates the main electrical power transmission networks and community heating, water and sewage systems in several locations. Negotiations are ongoing with territorial governments in both Northwest Territories and Yukon to transfer responsibility for NCPC to the territorial level.

6.3.1.28 Northern Pipeline Agency

This agency oversees the regulation of the Alaska Highway Gas Pipeline to ensure that construction and operation provide the maximum economic, industrial and energy benefits for Canada and that social and environmental impacts are kept to a minimum.

6.3.1.29 Northern Transportation Company Limited

The Northern Transportation Company provides transportation and related services to the North. In the summer of 1985, Nunasi Corporation, the economic development wing of Inuit Tapirisat of Canada, purchased the Northern Transportation Company Limited.

6.3.1.30 Public Service Commission of Canada (PSC)

PSC administers the *Public Service Employment Act* by developing and administering standards for selection of candidates for the federal public service, by providing and operating mechanisms for appointments challenged as violations of the merit principle and by auditing the manner in which staffing authority is exercised. It also administers the Act as it relates to the political activities of public servants, ensures equality of access to the public service for all Canadians, conducts and advises on training and development programs and investigates discriminatory treatment in the public service.

PSC maintains an Office of Native Employment at the PSC District Offices in Yellowknife and Whitehorse.

6.3.1.31 Department of Public Works (DPW)

DPW provides a wide range of engineering, architectural and construction services. In the North, it is concerned predominantly with housing and transportation, providing dwellings for federal government employees, keeping water transportation routes navigable and designing, constructing and maintaining highways.

6.3.1.32 Department of Regional Economic Expansion (now Regional Industrial Expansion)

The work of this department (now called Regional Industrial Expansion) is to plan and coordinate programs designed to overcome regional economic disparities in Canada in cooperation with the territorial governments and other federal government departments.

6.3.1.33 Revenue Canada

This department controls the international movement of goods, persons and conveyances, collects duties and tax due on imports and administers the provisions of the *Excise Tax Act*, the *Excise Act*, the *Importation of Intoxicating Liquors Act* and related regulations. It issues licences, provides tax information and audits the records of businesses subject to payment of federal sales and excise taxes.

Customs ports are maintained in Yukon at Whitehorse, Beaver Creek, Dawson, Little Gold (summer only), Old Crow and Pleasant Camp and in NWT at Frobisher Bay and Inuvik.

Customs service at other locations in NWT and Yukon is provided by other federal government departments including the Royal Canadian Mounted Police, the Canadian Coast Guard, the Department of National Defence and the Department of the Environment.

6.3.1.34 Royal Canadian Mounted Police

The RCMP provides policing to the territories under contract to the territorial governments. "G" Division, with headquarters in Yellowknife, and "M" Division, headquartered in Whitehorse, are responsible for NWT and Yukon respectively.

There are 38 detachments in NWT, two highway patrols and five plain-clothes units; 25 settlements are served by Regular Patrol Service. In Yukon, there are 12 detachments serving communities outside Whitehorse.

6.3.1.35 Statistics Canada

Statistics Canada maintains an ongoing program of consultation and liaison with the governments of Yukon and NWT and offers technical support for the statistical activities these governments conduct.

6.3.1.36 Secretary of State

This department administers programs to encourage effective Canadian citizenship and coordinates the formulation and development of national strategies and policies affecting citizenship.

6.3.1.37 Transport Canada

Transport Canada develops, promotes and coordinates plans and programs for transportation services and terminal facilities, and plans, undertakes, directs and funds transportation research. Its Railway Transportation Directorate formulates railroad policy. The Water Transportation Assistance Directorate subsidizes essential water transport services. The Arctic Transportation Directorate has been incorporated into the Government Relations Branch which provides coordination and liaison between Transport Canada and the territorial governments. The Canadian Surface Transportation Administration manages the Urban Transportation Assistance Program. The Highway Branch negotiates and manages cost-shared highway programs.

The Canadian Marine Transportation Administration provides facilities and services for commercial and re-supply shipping, coordinates the delivery of cargo to northern communities, provides ice and routing information, provides icebreaker support, carries out environmental research and surveys, installs, operates and maintains aids to marine navigation including Coast Guard radio stations, carries out search and rescue operations, administers the *Navigable Waters Protection* and the *Arctic Waters Pollution Prevention Acts*, leases facilities to a Crown company in the transportation field, administers port facilities at various locations north of 60a/°N and conducts research and development on marine transportation technology.

The Canadian Air Transportation Administration is responsible for the national civil air transportation system, including specification of criteria for arctic airports and the ownership and operation of those classified Arctic "A". This organization develops and enforces aeronautics legislation standards and procedures, inspects, examines, licenses and certifies personnel and aircraft, provides surveillance of aircraft manufacture and repair and investigates aircraft accidents and incidents, provides control services to IFR flights, provides aeronautical communication services and conducts survival training programs.

6.3.1.38 Veterans Affairs Canada

This department provides health care, financial assistance and counselling to eligible veterans and their dependents.

6.3.2 Yukon

6.3.2.1 *General*

The responsibilities of the territorial government are administered by a number of departments. They are listed below with a brief outline of their functions.

6.3.2.2 *Public Service Commission*

The Commission is concerned with all matters relating to the Yukon government. Among its responsibilities are recruitment and training, internal labour relations, employee compensation, pay assessment, job evaluations and employee records.

6.3.2.3 *Education*

This department is responsible for the administration of Yukon's public schools adult institutional training, apprenticeship, tradesmen's certification, industrial training, post-secondary student financing, manpower planning and employment development programs.

6.3.2.4 *Finance*

The financial operations, accounting services, revenue and taxation and financial management of the Government of Yukon are handled by this department.

6.3.2.5 *Government Services*

This department includes the following branches: Property Administration, Supply Services; Systems and Computing Services and Public Works. The department coordinates general service agencies used by various other Yukon government departments.

6.3.2.6 *Health and Human Resources*

Health services, alcohol and drug services, and vocational rehabilitation services are provided by Health and Human Resources. Special programs of note include child welfare, day care licensing and subsidy programs, youth services, services to seniors, community development, and speech pathology/audiology.

6.3.2.7 *Community and Transportation Services*

The Highways Branch of the department is responsible for the maintenance, construction and reconstruction of Yukon highways, and for provision of mechanical services. The Airports Branch maintains and in some cases operates Arctic "B" and "C" airports for the Yukon government and for federal departments. Some 20 emergency landing strips are also maintained. The Transport Services Branch administers Motor Vehicles and highway weigh stations and provides support service to the Motor Transport Board which regulates highway transportation.

Community Affairs has the responsibility for housing, community and municipal services, lands, protective services, property assessments and services, arts, sports and recreation.

6.3.2.8 *Executive Council Office*

The Executive Council office provides support to Cabinet, coordinates the agenda for Cabinet and related committees and carries out an analysis and review of all Cabinet submissions and intergovernmental agreements. Intergovernmental Relations, the Public Affairs Bureau, the Internal Audit Bureau and the Federal Relations office in Ottawa come under the administration of this department.

6.3.2.9 *Justice*

The department provides or has responsibility for: legal services, land titles, public administration/coroner, legislative counsel, courts and administrative services, legal aid, territorial court, sheriff's office, supreme court of Yukon, corrections and adult probation services. It also regulates consumer services, corporate affairs, labour services and Yukon utilities. It has special programs on consumer and metric information, occupational health and safety, employment standards and fair wages.

6.3.2.10 *Tourism*

This department is responsible for tourism marketing, tourism development and coordination of Yukon's participation in Expo '86. It also runs the Heritage Branch.

6.3.2.11 *Renewable Resources*

The work of this department is carried out by four branches — Administration, Lands, Parks and Resources Planning, Policy and Fish and Wildlife.

6.3.2.12 *Economic Development: Mines and Small Business*

The department includes the following branches: Administration, Special Projects, Economic Research and Planning, and the Energy Branch.

6.3.2.13 *Other Yukon Government Agencies*

Agencies other than departments include the Workers' Compensation Board and the Liquor Corporation.

6.3.3 Northwest Territories

6.3.3.1 *General*

The responsibilities of the Government of Northwest Territories are administered by various departments, some of which are listed below together with a brief outline of functions. There are also secretariats to the Financial Management Board, to the Executive Council and to Energy, Mines and Resources.

6.3.3.2 *Economic Development and Tourism*

This department has the responsibility of developing the economic resources of NWT by encouraging small businesses. It plans and establishes programs to promote tourism and to encourage the marketing and sale of goods produced in the territory.

The department is involved in the planning and establishment of territorial parks and recreational facilities to assist in the development of the tourist industry.

In concert with the federal government, the Department of Economic Development and Tourism administers various small business loans and grants funds.

6.3.3.3 *Municipal and Community Affairs*

This department's prime objective is the development of political and social awareness and the fostering of the skills of democratic politics at the community level in NWT.

The department's largest division is the Municipal Affairs Division. Its objective is to establish and provide guidance to local government institutions, and to see that they are administered economically, competently and within the guidelines of the Territorial Ordinances.

The Town Planning and Lands Division is concerned with guiding the physical growth of communities and the effective utilization of land within the communities.

The Development and Training Division has as its objective the promotion of a better understanding of the process of community development and government in the North. The division works closely with federal agencies, native groups and the communities to foster better understanding of the process of community development at the local level.

6.3.3.4 *Social Services/Health*

These departments are responsible for the provision of health services, correctional services, welfare, children's aid, alcohol abuse programs and day care.

One of the more important dimensions of the operation of these two departments is the policy of fostering local involvement in decision-making and in the management of the relevant programs. They encourage citizen participation and the decentralization and devolution of social and health services to the community and regional levels.

6.3.3.5 *Education*

The Education Department has the sole responsibility for the delivery of educational services to NWT. This includes developing curricula, training educational staff, providing employment opportunities and overseeing construction of school facilities.

One of the more important tasks of the department in recent years has been the development of teaching materials and curricular options in the native languages.

In the spirit of decentralization and devolution in NWT, the Department of Education has been fostering the development of skills in the communities which will ultimately result in the transfer of the department's current responsibilities to locally elected school boards.

6.3.3.6 *Renewable Resources*

This department brings together all territorial government programs related to the cultural and economic traditions of the native way of life in NWT. The responsibilities include fish and wildlife management, forestry, land management and environmental protection on those lands which are under territorial administration. The goals of this department are still achieved to a large extent with the cooperation of federal agencies.

One important feature of the programs of this department is hiring native northerners and utilizing, where possible, the skills and experience of the residents of the communities of NWT.

6.3.3.7 *Justice/Public Services*

The objectives of this department are to supervise the administration of justice in NWT and to oversee the enforcement and implementation of territorial ordinances.

6.3.3.8 *NWT Housing Corporation*

The objective of the NWT Housing Corporation is to provide suitable housing to residents of NWT at reasonable costs. Specific programs of the Housing Corporation include construction of low-rental accommodation, accommodation for single persons and senior citizens and administration of rental-purchase plans and Home Acquisition Assistance grants.

6.3.3.9 *Government Services*

This department provides support to other departments in areas such as purchase and management of supplies and materials, communications, transportation and computer-related services. In addition, the department has program responsibility for administering the liquor system, the motor vehicles registry and the distribution of petroleum products to more than 45 communities not served by the private sector. It is also responsible for safety-related activities.

6.3.3.10 *Personnel*

The Department of Personnel is responsible for planning and coordinating personnel management within the public service of the Government of Northwest Territories. Staff development and training is an important program in this department. Affirmative action programs for native people, women and the handicapped are also a high priority.

6.3.3.11 *Public Works*

This department is responsible for designing, building, operating and maintaining all the buildings and works required by the Government of Northwest Territories, including operating ferries, vehicles, heavy construction equipment, and maintenance and reconstruction of roads and highways.

6.3.3.12 *Culture and Communications*

One of the major concerns of this department is the implementation of an active information program responsive to the communication needs of northerners, with emphasis on aboriginal languages. It is also responsible for the museum program and library services.

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7.0 Renewable Resources

7.1 Water

7.1.1 General

Flying over Yukon or Northwest Territories during the summer leaves the impression of countless lakes, representing a vast resource of fresh water. Indeed, it has been estimated that about half of Canada's reserves of water lie north of 60a/°N latitude. In NWT the amount is huge, much of it is static. Losses are low and the rate at which reserves are replenished is also low.

Low losses are the direct result of low temperatures. Permafrost underlies much of the area and this limits downward percolation of surface water. At the same time, low temperatures result in low evaporation and low rates of growth of vegetation, and hence low losses due to evapotranspiration.

Reserves are replenished slowly because precipitation is low over most of the area. In fact, those parts of the drainage basins of the major rivers which lie south of Northwest Territories boundaries contribute a disproportionate share of the flow.

There are many river systems in Yukon and NWT. The best-known are the Yukon, in the territory of the same name, and the Mackenzie, in the western half of NWT.

East of the Mackenzie River drainage basin a number of smaller rivers, including the Coppermine, drain directly into the Arctic Ocean. In the District of Keewatin, rivers run southeast into Hudson Bay from the eastern portion of the district; from the northwestern part they empty into the gulfs on the southern edge of the Arctic Ocean. Although the Back and Thelon are major rivers, neither approaches the size or importance of the Mackenzie or the Yukon.

There are numerous smaller rivers throughout the territories. Of these, 172 have sufficient flow to warrant one or more streamflow gauging stations.

Many of these rivers have potential for hydroelectric production; a few have already been developed. Some rivers are navigable and have played a role in transportation. Today, only the Mackenzie carries a large amount of freight, although the Yukon at one time provided an important link between Whitehorse and Dawson.

7.1.1.1 Yukon River

The Yukon River drains above the gauging station at Dawson 264,000 km^2. The basin includes the Atlin area of northern British Columbia and much of southern Yukon.

The Yukon River at Dawson has a mean annual flow (1945-80) of 2210 m^3/s. Monthly mean flows vary from a low in March of 427 to a high in June of 5880 m^3/s. Over the period 1945-80 the maximum monthly flow was recorded as 12,200 m^3/s, in June 1964, and the minimum was 185 m^3/s, which occurred in February 1951. The principal tributaries of the Yukon from its headwaters to its crossing into Alaska with their mean annual flows (taken from the 1982 *Historical Streamflow Summary*, published by Environment Canada) in cubic metres per second (m^3/s) in parentheses are the Teslin (331), Pelly (382), White (766), Stewart (454) rivers.

Sightseeing excursions are the major commercial water transportation users on the Yukon River at present. Prior to the construction of the Whitehorse/Dawson highway, the river was essential for transportation.

At Whitehorse, the mean date for permanent ice cover (1965-74 data) is November 7, with complete freeze-over by December 3. The earliest and latest dates during the period were: for permanent ice, October 7 and December 10; and for complete freeze-over, November 1 and January 21. Break-up has started (1965-74) as early as March 13 and as late as May 6, with ice-free dates of April 14 and May 24. The mean date of breakup at Dawson is May 10.

7.1.1.2 Mackenzie River

In NWT, the Mackenzie River drains an area of some 804,200 kmb/2, which is about 45 per cent of the total Mackenzie River Basin. Of the remaining portion, almost half is in Alberta and a little over a quarter in British Columbia, with the remaining quarter divided about equally between Saskatchewan and Yukon.

The Mackenzie River carries the water of Great Slave Lake to the Arctic, a distance of about 1722 km. At the gauging station closest to Great Slave Lake the mean annual flow averaged over the period 1961-78 was 6820 mb/3/s. In the same period, the minimum mean monthly flow occurred during March, with a flow of 1820 mb/3/s and the maximum in July of 7160 mb/3/s. The river is braided at its mouth and, at the last gauging station above the Delta at Arctic Red River, has a mean flow of 9070 mb/3/s (1973-82 data), with a minimum mean of 3400 occurring in March and maximum mean of 21,500 mb/3/s in June. The major tributary of the Mackenzie is the Liard, which has a mean annual flow (1973-82 data) of 2420 mb/3/s. Other streams which contribute to the flow are the Arctic Red and Peel rivers.

The river is navigable along its entire length during the ice-free season. The season does not advance uniformly from south to north. The first break typically occurs about May 5 in the middle section, due to the high run-off in the drainage basin of the Liard. Break-up is delayed upstream due to the stabilizing effect of Great Slave Lake, while downstream from about Fort Good Hope, disruption of flow by upstream ice jams and lack of major tributaries holds ice for another two weeks. The river is not usually clear of ice as far downstream as Tuktoyaktuk until the very end of June or the beginning of July, but navigation in the upstream section begins about mid-June. Freeze-up occurs around October 12 in Aklavik and moves steadily upstream, reaching Fort Simpson by about November 27. However, shipping is related to ice-free conditions at the mouth and as a result the navigation season ends in late October.

Although the river is considered to be navigable over its full length there are five sections where problems can arise, particularly during seasons of low flow. The first is at the entrance to the river from Great Slave Lake and extends downstream for about 28 km. The Province Rapids, which extend for about 17 km starting at km 60, the Green Islands (km 298 to 330), the Sans Sault (km 1015 to 1028) and the Rampart Rapids (km 1080 to 1085) are also troublesome at times.

In the rapids sections, after the early season high water has receded, it is usually necessary to break tows and relay barges through the problem stretches. Recently, several tugs and barges were forced to winter at Inuvik as they were unable to get over the sharp limestone ledges which characterize the Rampart Rapids in the low water just before the end of navigation.

7.1.2 Government Controls and Regulations

The *Northern Inland Waters Act* is administered by Indian and Northern Affairs Canada (INAC). The Act set up the Yukon and NWT water boards, which license water use in each territory. These boards which may have up to nine members are made up of nominees of the three federal departments most directly concerned with the management of water — Indian and Northern Affairs Canada, Department of the Environment and Health and Welfare Canada — and at least three persons named by the Commissioner in Council of each territory. The Minister of Indian and Northern Affairs Canada may nominate three other members. The objects of the boards are, "to provide for the conservation, development and utilization of the water resources" of the territories.

Regulations under the Act define geographical water management areas in NWT and Yukon and provide for a number of classes of use, including agricultural, conservation, power generation, river improvement and storage purposes. Licences are required for many uses, however, domestic use by people owning or occupying lands adjacent to waters is excluded along with water uses associated with emergency fire and flood control.

The *Arctic Waters Pollution Prevention Act* applies to waters adjacent to the mainland and islands of the Arctic and is concerned primarily with the deposition of wastes. It controls both shipping and non-shipping activities in the Arctic seas. This statute is administered by Indian and Northern Affairs Canada for those waters located north of the line of administrative convenience, and by Energy, Mines and Resources Canada for the waters of Hudson's Bay and Hudson's Strait (south of the line of convenience). Finally, the shipping sections of this legislation are under the responsibility of Transport Canada (Canadian Coast Guard). Regulations made under the Act exempt the deposit of waste permitted under the public health ordinances of Northwest Territories and where applicable under the *Oil and Gas Production and Conservation Act*, the *Territorial Lands Act* or the *Public Land Grants Act*.

7.1.3 Hydroelectric Power Generation

The rivers of Yukon and NWT have considerable potential for electrical energy production. As yet, only a small fraction is developed, due, primarily, to the low electrical demand in the North and to the high cost of construction. Within the two territories there are ten hydroelectric installations. The installed capacity is small by southern standards, ranging from 0.65 MW to 40 MW. (See Table 7-1).

In addition to the sites already developed, the feasibility of electrical generation at other locations is being investigated. Most of these sites are small and are of local interest only, but others have potential capacities of several hundred megawatts. Some of the sites, such as Virginia Falls on the South Nahanni River, may never be developed because of the small loads and the environmental impact this would have within Nahanni National Park.

7.2 Forestry

7.2.1 General

The forests north of 60a/°N remain mostly unexploited with regard to timber production. It is estimated that 700,000,000 m^3 of marketable timber is located 209,000 km^2 of productive forest land. About 40 per cent is in Yukon, the remainder in Mackenzie District of NWT, where the Liard Valley has the greatest harvesting potential. Because the forests north of 60a/° occur in relatively small patches over a large area, accurate figures are difficult to obtain. Indian and Northern Affairs Canada (INAC) is evaluating information on the northern forests by sampling the more accessible stands and by interpreting aerial photography and Landsat imagery.

Forests provide building materials and employment in logging and sawmilling. They are also valuable as a source of fuel and as a recreational area, as well as habitat for wildlife from which the native people obtain meat and fur. Watershed protection and erosion control are other important benefits.

Recent developments in timber harvesting methods, combined with increasing demand for forest products, have stimulated forest industry interest in the North, with a number of new firms already established; the prospect of commercially viable, though modest integrated forest products operations appears likely, although the trees are not large by southern standards. These increasing demands are expected to result in improved quality of northern forest products and to create a need for better managed forests and an efficient forest industry north of 60a/°N.

In order to ensure proper management of the forest resource and provide adequate timber supplies to meet large capital investments by industry, procedures are being developed for the allocation of cutting rights over extended time periods of up to ten years, with one such agreement already in place in Yukon.

7.2.2 Administration

Negotiations began in September of 1985 to transfer Northern Affairs Program's responsibility for forestry and fire management to the Government of the Northwest Territories.

The Forest Resources division in the NWT region is responsible for the implementation of territorial timber regulations. It oversees the cutting and removal of timber on territorial lands.

The region's fire program is responsible for fire prevention north of the 60th parallel, including pre-suppression, suppression and detection programs in the western Arctic.

Both programs will be transferred to the Territorial government April 1, 1987.

Implementation of departmental policy in Yukon is the responsibility of the Forestry Division of the Northern Affairs Program with headquarters in Whitehorse. In NWT, the corresponding headquarters is in Yellowknife. There is also a branch office at Fort Smith which has responsibility for the fire control program in NWT.

Management of forest resources was established in the 1940s by the Yukon Lands and Forest Service and the Northwest Lands and Forest Service primarily as forest protection and fire suppression units. General improvements carried out over the years have led to the present modern, relatively well-equipped organization.

Forest management offices have been established in each of the various administrative districts in both Yukon and NWT. Depending on the size of an administrative district or area, the permanent staff might include a regional manager of forest resources, a forest management officer, a fire management officer, clerks and radio operators. In addition, summer seasonal personnel, initial attack crews, airtankers, and lookout staff are positioned at strategic points during the fire season.

7.2.3 The Forests

The treed area of NWT and Yukon falls within the Boreal Forest Region described by J.S. Rowe in *Forest Regions of Canada*. Figure 7-1 shows the Boreal Forest divided into two parts a southern part, which is predominantly forest, and a northern part, which is a mixture of forest and barrens. Rowe's publication gives a further breakdown into several forest districts, each of which is described in detail.

The Boreal Forest consists primarily of open stands of slow-growing black and white spruce and a ground cover of lichens and/or mosses, which becomes quite dense as the stands age. This forest is interspersed with many treeless bogs which are often fringed by larch and by occasional dense, tall forest stands. In the southern portion of NWT, jack pine is often found on sandy soils and some uplands. The common deciduous trees, prominent following fire, include trembling aspen, balsam poplar and white birch. To the west of the Mackenzie River, lodgepole pine covering extensive areas and Alaska birch are found.

In the north, there is an increasing trend toward domination by black spruce and bogs. The bogs range in composition from grass and sedge through sphagnum moss. Particularly common are tussock sedge areas with sphagnum moss and many low ericaceous shrubs. Among the more usual shrubs are dwarf birch and Labrador Tea, on both bog and upland sites. Several species of willow occasionally cover large expanses along rivers and around bogs and marshes. These are important for moose. Shrub alders are also found.

The northern limit of tree growth is called the tree line. Its position is determined mainly by climate; the average temperature for July must reach at least 10a/°C for trees to grow. Soils also play an important role. South of the tree line, absence of trees usually reflects poor soil conditions. Even so, stands of black spruce can occur on permafrost. Besides the northern Arctic tree line, there is also an alpine tree line at about 1000 m above sea level, or lower to the north.

Identification of tree species is often difficult in the North. Typical western species mix with typical eastern species to form hybrids and intermediate forms. Examples are: lodgepole pine and jack pine, black cottonwood and balsam poplar and Alaska birch and paper birch. The spruces found in the North also differ slightly from the same species found to the south and east.

7.2.4 Timber Harvesting and Regulation

White spruce is the most useful species, especially favoured for lumber and piling. The best stands are found on the alluvial flats of rivers, where excellent growing conditions and natural fire protection have allowed trees to live for more than 150 years and to reach sizes which would be considered large even in southern parts of Canada. It is not uncommon to find spruce over 60 cm in diameter and 30 m tall along the Lower Slave River in Mackenzie District or on the Liard River in Yukon and NWT. The volume of some white spruce stands can run up to 400 m^3/ha.

Pine (both jack and lodgepole) cover thousands of square kilometres north of 60a/°N. Individual trees seldom exceed 35 cm in diameter; however, the wood is used for lumber, mine timbers, piling and fuel. It is possible that pine and spruce trees may occur in sufficient volumes to maintain a pulpmill on the Liard River.

The largest species is balsam poplar which can attain a diameter beyond 90 cm. Balsam poplar can be peeled for plywood, but so far this has not been commercially feasible in Yukon. Poplar stands are restricted to the southern half of Yukon and the southern third of Mackenzie District, NWT.

Mines have been the big users of wood. Often the development of a mine was dependent to a large extent on the availability of mine timbers. In permafrost areas, modern buildings are built on pilings so as to be separated from the frozen ground by a metre or more of open air.

In recent years there has been a marked increase in the number and size of forest operations in NWT, and the demand for timber is continuing to increase. However, forest production has been geared to supply limited local markets and a portion of NWT's requirements is still supplied from the south. This, however, is not indicative of what the northern forests could actually produce if called upon, and forest-based industries would appear to have considerable potential for future development. It is estimated that the softwood allowable cut for NWT could approach one million cubic metres annually, although full development of this potential will depend upon the establishment of economic markets and transportation facilities.

Precise projection of forest productivity in the region is not possible, since there is not as yet a comprehensive forest inventory. However, the major areas of standing timber have been identified through a number of special studies. An inventory of the Slave River Forest Management Unit has been completed, and one of the Liard is in progress. It is estimated that there are approximately 100,000,000 m^3 at present along the Mackenzie River system from Fort Smith to the Mackenzie Delta, plus an additional 45,000,000 m^3 along the Liard River from the 60th parallel, for a total 145,000,000 m^3 of potentially marketable timber. These are conservative estimates, but they do indicate a resource of potential value. The estimates are based on trees of sawtimber size and do not include smaller trees potentially usable for fibre or energy biomass production.

All figures on growth are sketchy. For the Liard Valley, estimates range from a mean annual increment for mixed sawlogs of 1.3 m^3/ha to 2.1 m^3/ha, depending on the site, to a value for mixed pulpwood up to 4.1m^3/ha.

In Yukon the total wood volume is a proximately 253,507,000 m^3, composed of 214,657,000 m^3 of softwood and 38,849,400 m^3 of hardwood based on 1967 estimates. The potential annual allowable cut was calculated at 3,000,000 m^3. As these estimates of timber resources are now obsolete, a forest reconnaissance inventory was initiated in 1983 and completed in 1985. A detailed forest management inventory is now underway, starting in the southeast Yukon area, from which new annual allowable cuts will be determined for various areas.

Timber harvesting in the North is controlled by the *Territorial Timber Regulations*. Each person or company must obtain a permit to cut a tree except for the following:

- a trapper, a prospector or a scientist, who may cut a quantity of fuel wood;
- a householder, who may cut two Christmas trees; or
- a holder of a permit or licence issued in accordance with the *Territorial Land Use Regulations*.

Permits are issued without payment of dues to:

- an educational, religious or charitable institution, or a hospital in either territory;
- any federal, territorial or municipal government;
- any resident to cut 90 m^3 (stacked) of fuel wood for his own use; or
- any person to clear land.

Regular permits are issued for sawtimber to a maximum of 15,000 m^3 of wood at a rate of 20 cents per cubic metre. Other rates are applicable to special products or classes of timber.

The lack of attention to forest regeneration after logging is of increasing concern. It is important to ensure the establishment of a new crop of trees following harvesting, and tree planting in logged areas or severe burn areas is needed. Until the present, protection of the environment has not been a major concern in connection with timber harvesting. The regulations do provide that no timber be cut within 60 m of a public road or the shore of a lake. The forest officer has the power to ensure that the timber is cut in a satisfactory manner and that debris resulting from the cutting be disposed of satisfactorily.

7.2.5 Fire Protection

Responsibility for forest fire management rests with INAC, which administers existing territorial ordinances. Since September 1985, when an agreement-in-principle was signed by officials of the territorial government and INAC, negotiations for transfer of forest and fire management to the territorial level have been ongoing. A transfer date of October 1, 1986, was set but could not be met.

Forest fire management in the territories presents some challenges which are unique to the North. First, the climate is very dry; consequently, vegetation during the summers is highly combustible. Secondly, the North is sparsely populated, making fire detection difficult and firefighting an expensive process.

The stated aim of forest fire management policy is "to reduce wildfire damages to the level consistent with the present and future needs of the people and use of the renewable resources".

Forest Protection Ordinances provide authority to prosecute individuals for the careless handling of open fires and the deliberate setting of fires. They also allow for the conscription of members of the general public in times of forest fire crises. A permit is required during the fire season (normally May 1 to September 30) for any open fire other than a small fire for cooking or warmth.

Until the spring of 1981, the North was divided into three priority zones, plus an unprotected area. The highest priority (Zone 1) was assigned to areas adjacent to main communities. Zone 2 included national parks, areas adjacent to roads and commercial waterways, mines, lodges and small settlements, and identified stands of merchantable timber. Zone 3 included wildlife sanctuaries, important trapping areas, recreational lands and important watersheds.

Due to an exceptionally bad fire season in NWT in 1979, a new forest fire management policy was embarked upon. It came into effect May 15, 1981. This policy was designed to improve existing firefighting procedures as well as to increase community involvement in forest fire control operations. The new policy divides treed lands in each territory into a "fire attack zone" and an "observation zone". Fire attack zones include areas around the communities, power and communication facilities, special trapping areas, parts of NWT caribou winter range, lands containing potential and merchantable timber, valuable watersheds and areas subject to erosion damage.

Observation zones include treed areas outside the fire attack zones, where user intensity is low and where fires may be beneficial or at least neutral.

Fires in the fire attack zones will receive strong and rapid initial attack to keep them from spreading. Those in the observation zones will not be fought except under special circumstances.

Altogether, the fire attack zones encompass 251,875 km^2 (approximately 40 per cent of the treed area) in NWT and 145,040 km^2 (approximately 29 per cent) in Yukon.

For the years 1975-83, lightning caused 66 per cent of the fires and was responsible for 97 per cent of the area burned. Virtually all lightning-caused fires occur during June, July and August.

Since then, the expanded territorial road system, the emphasis on development and exploration, the growing tourism and recreation industry, and a general increase in population have resulted in an increase in the incidence of fires caused by people. As well, the additional use of outlying areas by individuals and industry enlarges the area where immediate response to outbreaks of fires must be made.

The new wildfire management policy anticipates an increase in community participation in firefighting activities. The program calls for an intensification of local training programs, as well as the utilization of locally-based enterprises to provide support services for firefighting crews. At the same time, heavy reliance is placed on aircraft for detection and fast action to control the fires.

It is recognized that in the North, as in most of Canada, fire is a natural ecological factor. Wildfires have contributed to the present mosaic of vegetation, with its variations in species and age. Nevertheless, a recent report to the government has pointed out that in terms of human lifespan, fire can utterly destroy timber resources and caribou winter range. Lichens, an important winter food of caribou, do not reach a state of abundance until 50 years after a fire.

While the "normal" rate of burn in the North is about one per cent per year (less in the South) this rate is acceptable only if the fires are widely scattered in time and space.

7.3 Wildlife

7.3.1 General Characteristics of the Northern Biological System

The North is characterized by a highly specialized fauna and flora. Important influences on wildlife of the North include seasonal energy inputs from the sun, low precipitation and the relatively recent recolonization of much of the area following retreat of the continental ice sheet 8,000-10,000 years ago. As a result of these and other environmental controls, the North has few plant species.

The small number of plant species partially explains why there are so few animal species in the Arctic and why individual species' numbers are small. Nevertheless, plants not only provide food for animals, but they also help create environmental diversity, allowing different animal species to co-exist in a given area.

This overall low density does not mean there is an absolute biological scarcity. Indeed, huge herds of caribou, flocks of geese and colonies of sea birds, and large numbers of ringed seal, pods of whales and herds of walrus are impressive concentrations of wildlife.

To take advantage of the favourable seasons and to offset the limited food supply at other times, many Arctic species migrate. Those which remain in the North have developed special adaptations or are supported by marine food stocks that are less affected by seasonal variations.

An unexpected feature of the northern biological system is the relatively high productivity of the Arctic seas. The concentrated schools and herds of whales and walrus, and the widespread abundance of seals, combined with the large body size of these mammals suggest a high level of marine productivity. As on the land, however, marine plants have a very short growing season. The polar seas support a relatively small number of fish species, but a surprisingly diversified marine mammal fauna.

As a rule, high latitude wildlife has a slower growth rate than similar populations in more temperate regions. The slower growth rate usually results in later sexual maturity and lower fertility. Some compensation occurs because Arctic animals often grow to large sizes and may also live longer. The slow growth rate is generally attributed to the short growing season and the limited availability of food throughout the year. Reproductive success is highly variable in most terrestrial Arctic species, often because of the effects of climate — such as weather extremes which can affect food supply or bring unusually late springs.

7.3.2 Important Northern Species

In this brief review the importance of species is reckoned in terms of economic value (commercial and subsistence), role in the maintenance of Arctic ecosystems and in the case of rare and endangered species, importance as national and international resources.

7.3.2.1 Terrestrial Mammals

Moose

Accurate estimates are not available for the population of moose in NWT and only an approximate estimate of 30,000 animals has been made for Yukon. Moose populations fluctuate over time because of man-induced and natural causes.

Caribou

There are three main groups of caribou: the barren-ground caribou; the woodland caribou; and Peary caribou.

Barren-ground caribou

This group occurs in the mainland and Baffin Island portions of NWT and in Yukon. Total population estimate, including such well-known herds as the Porcupine herd in Yukon and the Kaminuriak herd near the Baker Lake area is about 680,000, based on aerial photograph analysis.

Causes of population change include a variety of environmental circumstances and variations in predation and hunting pressure. Being migratory, barren-ground caribou may be adversely affected by habitat alteration at any point in their range.

Woodland caribou

Migration in this caribou is quite restricted compared to the migrations of the barren-ground caribou. The population estimates for Yukon are tentative, at about 5,000 animals; even less is known about population size and distribution in NWT.

Peary caribou

This is a smaller sub-species found in scattered small herds over most of the Arctic archipelago. Local populations on the western Queen Elizabeth Islands are near extinction due to a series of adverse winters. Total population is not well known, but is probably between 10,000 and 15,000.

Muskox

The distribution of muskox includes the Arctic islands (except Baffin Island) and areas of the mainland north of the tree line from near Paulatuk in the west to the central region of the Keewatin District and north to Boothia Peninsula.

Muskox populations enjoyed total protection from hunting from 1917 to 1969. Today they are making a comeback in the Arctic and probably number about 40,000 animals, many on Banks Island in NWT. In Yukon, muskoxen were exterminated at the turn of the century. They were subsequently re-introduced to Alaska's Arctic Wildlife Range, and some have recently roamed into Yukon.

Wolf

The timber wolf and tundra wolf are widely distributed throughout northern Canada.

Populations are generally low, ranging from one to 12 animals per 1,000 kmb/2 in a variety of Arctic settings. They become less numerous in the northerly parts of their range, where their prey has become less abundant.

Fox

The arctic fox and the red fox are generally restricted to tundra adjacent to sea ice areas and to wooded areas of the North, respectively. Arctic fox spend much of their winters on sea ice, relying heavily on polar bear kills.

Foxes have a very high reproductive potential; numbers fluctuate very widely over an apparent four- to five-year cycle of abundance related to lemming cycles for arctic fox in tundra areas and a 10-year cycle for red fox in boreal forest areas. Estimates of total population are not available but numbers of arctic fox harvested fluctuate between 10,000 and 40,000 annually in NWT. Red fox are harvested only to a limited extent; approximately 1,000 pelts are marketed annually in NWT.

Muskrat

This species is distributed widely in the Mackenzie District of NWT. As in the case of the fox, population levels are reflected in the harvest, which ranges from around 46,000 to 276,500 annually in NWT, averaging about 170,000 animals with about two thirds coming from the Mackenzie Delta. In Yukon, 19,339 pelts were taken in 1983, mostly from Old Crow Flats. They were sold at an average price of $3.25 each.

Beaver

Beaver are found widely in forested areas of the North.

Numbers of skins traded have ranged between 3,000 and 10,000 per year, with an unknown additional number used in the local economy for clothing and handicraft production. In NWT, figures for 1982-83 show that 2,714 pelts were taken; in Yukon 701 pelts were taken in 1983.

Wolverine

The present status of this animal in the Canadian North is uncertain. No population estimate is available, although the number traded has averaged 77 annually in NWT and between 100 and 300 in Yukon in recent years.

Lynx

This animal is found primarily in mixed coniferous-deciduous northern forested regions, only rarely venturing north of the forest margin. The population is cyclic in relation to its main prey, the varying hare. Consequently, the annual yield is variable, ranging from a low of about 600 to a high of 6,000 skins.

Polar bear

This important circumpolar species is rarely found any distance from the sea, as its major prey is the ringed seal. A rough estimate of polar bears in the Canadian Arctic is between 6,000 and 7,000. Approximately 600 bears are harvested annually by quota.

Dall's Sheep

This species is found throughout the mountainous ranges of Yukon and western NWT. It is a highly prized trophy species, with some 1,000 sheep taken annually. In addition, some populations are hunted for subsistence purposes.

Grizzly Bear

The grizzly is found throughout Yukon, the Mackenzie Mountains, the Mackenzie Delta area and on the barrens of NWT mainland. In the latter area the numbers are very low, but apparently expanding. In Yukon and some areas west of the Mackenzie River in the NWT, this species is hunted as a big game trophy species.

7.3.2.2 *Marine Mammals*

Although most marine mammals in the North are migratory, some are year-round residents, well adapted to the ice environment, providing the prehistoric and historic basis for human habitation of the Arctic coastal region. Use of marine mammals remains high and provides Inuit with much of their income and food.

Beluga

This is a common whale in the eastern and western Arctic regions, reappearing each spring as the ice breaks in May or June. Some beluga winter in areas of persistent open water (polynyas); many from the eastern Arctic probably undertake long-distance migration to Baffin Bay and the North Atlantic.

Those from the western Arctic winter in the Bering Sea or open water areas further north. A total population of 24,000 to 28,000 beluga has been suggested for the Canadian Arctic, of which 11,000 are found in the Mackenzie Delta-Beaufort Sea region and the remainder in the eastern Arctic.

Narwhal

This species is restricted to the eastern Arctic as far west as Somerset Island. Large numbers (20,000 to 30,000) have been reported in the Lancaster Sound region. Narwhal hunting has a high cultural value among the north Baffin Island Inuit.

Bowhead

This species is rare; population estimates indicate an eastern population in the hundreds and a western population of approximately 4,000.

Walrus

In Canada, the walrus is found almost entirely in the eastern Arctic. Population estimates range from 12,000 to 18,000 animals.

Ringed seal

This is the smallest seal in the Canadian Arctic, but the most widely distributed. Ringed seal are present throughout the year, maintaining breathing holes through the winter ice and whelping in birth lairs constructed beneath the snow on the winter sea ice. This species is by far the most important seal species, as it is the main prey of polar bears and the major species harvested by the Inuit. Ringed seals make up approximately 80 per cent of the annual commercial seal harvest.

Bearded seal

This is a widely dispersed species of large seal, which makes only limited use of winter breathing holes in the sea ice, and prefers areas of open water at the edge of the land-fast ice. There are no reliable population estimates for this species.

Harp seal

Harp seals are summer migrants into the eastern Canadian Arctic, arriving in July and August. The North Atlantic harp seal stock numbers about 1.25 million animals. There are various estimates of the numbers of migrants, ranging from 15,000 to 20,000 animals entering Lancaster Sound to 2,000 to 5,000 entering Hudson Strait each year.

Other marine mammals

Two other seal species have localized and rare status in the eastern Canadian Arctic: the harbour seal and hooded seal. The former is found in Hudson Bay and some localities in Baffin Island, often in or near ascending rivers, sometimes wintering in fresh-water lakes or rivers. The hooded seal is sighted more rarely, from Jones and Lancaster sounds, south to Hudson Bay. Several whale species other than those mentioned are occasionally found in eastern Arctic waters. Orca have been reported in summer in Lancaster and Jones sounds, at the eastern end of Hudson Strait and off the east coast of Baffin Island. Pacific walrus are seen rarely in the Canadian Beaufort Sea.

7.3.2.3 Birds

About 200 bird species breed in the closed forest areas of the western Arctic and the southern edge of NWT; this number is about halved in the open forest zone near the tree line, and halved once again in the true Arctic.

Most Arctic species return to the North to breed about the time the snow melts from the land. A very few species arrive before the end of winter, and fewer still spend the whole year there.

One characteristic of many Arctic birds is their concentrated occurrence at certain favourable locations. Thus, goose colonies may have about 400 nesting pairs per square kilometre and colonies of sea-birds may number in the hundreds of thousands on very restricted cliffs or island sites.

Snow goose colonies on Banks Island, near Eskimo Point and on the Great Plains of the Koukdjuak are examples of high nest density areas. During the fall staging period in the western Arctic, hundreds of thousands of snow geese gather on the Yukon and Alaskan North Slope.

Colonies of seabirds (black-billed murres, black-legged kittiwakes and northern fulmars) may number in the hundreds of thousands at preferred nesting sites. Prince Leopold Island in Lancaster Sound is one such important site.

Especially favourable habitats for birds in the North are provided by areas where marine currents favour high marine productivity; these include protected coastal areas and river deltas.

Northern birds are often larger in body size than related subspecies (or species) found to the south. There are other Arctic adaptations, including resorption of eggs if nesting is delayed by adverse weather or other conditions, non-breeding, ability to produce a second clutch of eggs in favourable years, arrival at the nesting grounds in spring already paired, and polygamy.

Northern birds often undergo very wide population fluctuations from year to year. The critical nature of the short breeding season, the short time available for fledging the young and unusually early and severe wintry storms can cause poor breeding success or high mortality among young birds.

Species hunted for food in the North include Canada goose, snow goose, brant, white fronted goose, common and king eider, pintail, old squaw, several species of scoter duck, mergansers, loons, grouse and ptarmigan. Eggs of many sea birds, such as gulls, murres, dovekies and ducks that nest in colonies are also gathered.

7.3.2.4 Fish

About 70 species of fish are found in the coastal and inland waters of the Canadian North, of which about 15 are important to domestic, sport or commercial fisheries. Though quantities often appear great, the stocks do not reproduce and grow quickly and are vulnerable to intensive sustained fishing. At present, there is no significant use of offshore marine species in the Canadian North.

Arctic char

The arctic char is a widely distributed species, found in lakes, rivers and coastal waters. It is important commercially, both as a sport fish and in the domestic economy of the North.

Whitefish

The main fishing activities for whitefish, both commercial and domestic, are in the Mackenzie River Valley, immediately south of Victoria Island on the mainland and inland from the west coast of Hudson Bay. No reliable data are available, but the annual harvest is probably about 450,000 kg.

Lake trout

This species is taken together with whitefish in the fisheries described above. There are no reliable figures on the size of the domestic harvest. The very large size of trophy fish obtainable in underexploited lakes makes sport fishing for lake trout attractive. However, the slow growth rate of the species suggests the need for a very low intensity of this activity.

Northern pike

This species occurs throughout Yukon and in almost all mainland regions of NWT. It is an important sport fish and there is some potential to expand this aspect of the fishery.

Inconnu

This is a fast-growing fish found in the Mackenzie River drainage basin. About 91,000 kg of inconnu are taken commercially each year on Great Slave Lake, a volume which has remained fairly constant since the beginning of that fishery in 1945.

Walleye

This species occurs throughout the Mackenzie Valley drainage system, although it is only abundant in the most southerly part of the area. The walleye is a popular sport fish in Canada. In the North, where access to many lakes is very difficult, they are abundant enough that there is scope for expansion of this fishery in the future.

Grayling

Although widely distributed, this fish is small and slow-growing. It probably has greater sport than commercial value but local stocks in Great Slave Lake have been depleted by sport fishing. Commercial fishing is limited to those netted while fishing for preferred species such as whitefish.

Salmon

In Yukon, there are five species of salmon, with two, the chinook and chum salmon having fairly extensive distribution and local importance for food, recreational fishing and commercial purposes.

Other species of fish

There are several species of fish which have value in the local economy but restricted distribution in the North. Capelin, Atlantic cod and Greenland halibut are found in eastern Arctic marine waters and are used to a limited extent. Sculpins of various species occur in all inshore Arctic waters and are sometimes utilized as food. In the western Arctic, herring are taken in marine waters and burbot and suckers in fresh-water locations.

7.3.2.5 Invertebrates

These forms of life are important largely because of their ecological role in providing food for all higher forms of life (i.e., fish, mammals and birds) which assume visible importance to man. However, there are some invertebrate species of evident economic importance.

Shellfish

There are only a few species which are regular items of human diet. In some coastal areas, blue mussels, abundant at low tides, can be a useful supplementary fresh food source. Sea-urchins are used in some regions, as are the intact bivalve molluscs found in walrus stomachs.

Crustacea

The most important crustacean resource, perhaps worth several millions of dollars annually if exploited, is the salt-water prawn found in certain waters off Baffin Island, Ungava Bay and perhaps elsewhere in the North. Test fishing for these "shrimp" has already taken place.

Non-economic species

The rich marine life of the North is supported by the invertebrate species found in the marine water column. Most of these forms occur either in the top few metres of the sea as plankton or on the sea bottom as benthos. The benthos in northern seas is especially productive and consists of a constant population throughout the year. Plankton, on the other hand, varies seasonally in abundance.

Insects

About 1,000 insect species occur north of the tree line, and 10 times that number in the region immediately to the south of the tree line. About half the species found in the tundra areas belong to one order of insect the two-winged flies (Diptera), which include mosquitoes, blackflies and midges. The next most common order of insect is the one which includes bees and wasps (Hymenoptera). There are about 20 species of butterfly found in the tundra, though some orders (e.g. the dragonflies and crickets) are entirely absent.

7.3.3 Importance of Wildlife

In addition to their economic value, the wildlife resources of the north are of great cultural significance, ecological importance and scientific interest. It is difficult to quantify even the economic dimension due to incomplete reporting systems and the problems of assigning market values to products used in the domestic economy.

7.3.3.1 *Economic Considerations*

Fur trading

The total value of furs traded by trappers, including seals and bears, in NWT in 1984-85 was approximately $3.3 million. In addition, many of the animals trapped provide a source of fresh meat to the families of the trappers and a number of skins are not traded, but utilized in the domestic economy for handicraft production. In NWT, 50% of the 3,790 registered trappers earned more than $8,000 from fur sales in 1984-85. The total value of furs traded each year in Yukon is around $1.5 million. In Yukon, about 700 people are engaged in trapping as registered trapline holders or as assistants. While the mean income from trapping is less than $2,000 per person, several trappers make their living by this means and may earn as much as $20,000 or $30,000 per season. As with other resource-based industries, the money to be made from trapping from year to year depends on demand and animal cycles. Currently, Europe, the United States and Japan are the biggest importers of raw furs from Canada.

Since 1982, the animal rights and anti-sealing movements have caused a dramatic decrease in the number and value of seals taken. In NWT, commercial sales since 1981-82 have averaged 15,700 seals and $258,000, down by 56 per cent and 43 per cent respectively. During the same period, however, the costs associated with seal hunting have increased. Consequently, the economic profit from seal hunting has shrunk considerably in the last few years.

A similar ban on the rest of Canada's fur products by the European Economic Community is expected to start seriously affecting the industry in 1986. As with seal skins, the loss of income gained through fur sales will greatly affect the livelihood of northern residents, many of whom have turned to trapping in response to the downturn in the mining and oil and gas industries.

Commercial fishing

About 1,163 metric tonnes of freshwater fish were landed in 1984 by the NWT commercial fishery, for a value of $2,730,000. The major species harvested in the NWT are whitefish from the Great Slave Lake area and arctic char from the Cambridge Bay region.

In Yukon, the commercial fishery is on a smaller scale; chinook and chum salmon, lake trout and whitefish are harvested for local markets.

There is a limited sale of marine mammal products (mostly whale skin), which probably amounts to less than $25,000 per annum. Nature organizations are looking to the coast of Baffin Island for the possible development of a shrimp fishery. In addition, there may be potential cod, greenland halibut and salmon fisheries to be developed. The viability of commercial-scale fisheries development in the eastern Arctic is currently affected by the prohibitive cost of transport to southern markets. Another difficulty is access to these resources. Except for salmon fishing, large vessels are necessary — the water is very cold and deep, and the tidal range is great in the Davis Strait.

Subsistence economy

This is the hardest aspect to quantify, yet it is undoubtedly the most important both in economic and non-economic terms to the local native populations.

In NWT, it is estimated that about 2.8 million kg of fish and meat are locally produced and consumed. Using substitution costs, this would have a replacement value of between $12 and $13 million. This figure, uniformly divided among all residents of communities smaller than towns, represents about $500 per capita. It is obvious that county food is of great economic value in terms of food dollars saved by local natives.

Estimates of the number of fish and wildlife harvested for subsistence purposes in Yukon are not available. Compared to NWT, figures would be much lower because the native population is quite small, 4,000 versus some 26,000. However, native people in Yukon are as dependent on local resources for food as most NWT natives.

Some of the non-economic values placed upon fishing, hunting and trapping are discussed in Section 7.3.3.3.

Tourism

It is assumed that a large number of tourists venturing north do so for the scenic or "exotic" value of the visit; this may entail an attraction for the "wilderness experience", whether merely viewing "unspoiled" nature or for other uses of wildlife, e.g., sport fishing or hunting.

Most of the available tourist accommodation, whether at community-based motels, hotels or private homes, or in fishing or hunting lodges or serviced campsites, is fully utilized during the summer season and significant growth is reported each year in this sector of the northern economy.

The estimated 44,000 visitors to NWT in 1982 spent an estimated $40 million in the territory. In Yukon, where more visitors arrive by private automobile, income generated by tourism continues to increase, with an estimated $51 million spent in 1981 in the territory by about 386,000 people.

7.3.3.2 Scientific Considerations

Scientific study of arctic biological systems is currently of great importance. The natural condition of large areas of the globe is being altered by environmental changes before man has had an opportunity to study and understand these unique areas and resources. There is also an equally pressing need to gather knowledge in order to better manage and protect the Arctic from serious damage at a time when the pace of development in the North is increasing.

Although the work of making inventories of species to answer the question "what is there?" has been carried out over much of the North, basic questions remain. These concern numbers, life history, physiology and behaviour, often in respect to very common and widespread species.

7.3.3.3 Cultural Values

There are a variety of benefits derived from use of wildlife by native and non-native residents of the North. Many non-native residents of the territories see hunting, fishing and the wilderness experience as one of the advantages of living in the North. In this case, as with many native people, they value wildlife for the contribution it makes to their lifestyle. There are recreational rewards, including psychological and emotional ones, involved in this lifestyle choice. These often contribute to the decision by non-natives to continue living in the North.

For the native people, the social value of wildlife is very great. Although they obtain significant economic value from harvesting fish, fur and game on a year-round basis, the "lifestyle" question is as much a cultural as an economic matter for native people. It is important to recognize that native cultures are rooted in a comprehensive and complex relationship linking man and nature, where nature includes wildlife, rivers, lakes, landforms and even the sky and the wind. Thus, native concerns about wildlife involve the very question of identity. To continue hunting, even when the economic need is minimal, has importance for many reasons. Social transactions, for example, often involving gift-giving or ceremonial acts, utilize meat or parts of animals. The sharing of food among relatives and friends helps bind people together and reinforces community solidarity at a time when social change serves to undermine the quality of life. Trapping, hunting and fishing offer native people the opportunity to teach children traditional skills — an important part of a young person's social development.

Finally, events in the natural world which are significant to members of a hunting society continue to form the basis of native cosmology. There are also some recreational values of native hunting which are similar to those of non-natives. Getting away from town and out on the land, for example, is quite often very important to native people, especially if they are also involved in full-time wage employment.

None of the above social values can be easily quantified or understood by non-natives. What is important to understand, however, is that the social value of traditional activities will continue to exceed the economic value because living close to the land is the native way of life.

7.3.4 Threats to Wildlife

Threats are not wholly the works of man. In the North, weather conditions are critical to the survival or population status of many species. Some characteristics already noted, such as failed breeding by sea birds, is climate-controlled. Caribou, especially Peary caribou on the Arctic archipelago, is another species whose populations may decline precipitately because successive years of inclement weather affect calving success or winter feeding.

Hunting provides another threat, especially when concentrated on a particular local population situated near a permanent settlement. However, there is potential for recovery if no other environmental change has occurred and hunting decreases.

The largest threats are often seen to occur as a result of industrial development because of the intensity, scope and long-term nature of the resulting impacts. Mining activities, major construction projects, hydroelectric developments and transportation corridors fall into this category. The nature of the threat is often stressful in a variety of ways, including landscape alteration and destruction, air, water and noise pollution and increased hunting and trapping by larger human populations. All these potentially harmful effects can to some extent be mitigated if industrial activities are planned and executed with full appreciation of the responsiveness of the arctic environment to disturbance.

In addition, regulations concerning the protection of wildlife and its habitat should transcend the political boundaries of province and territory.

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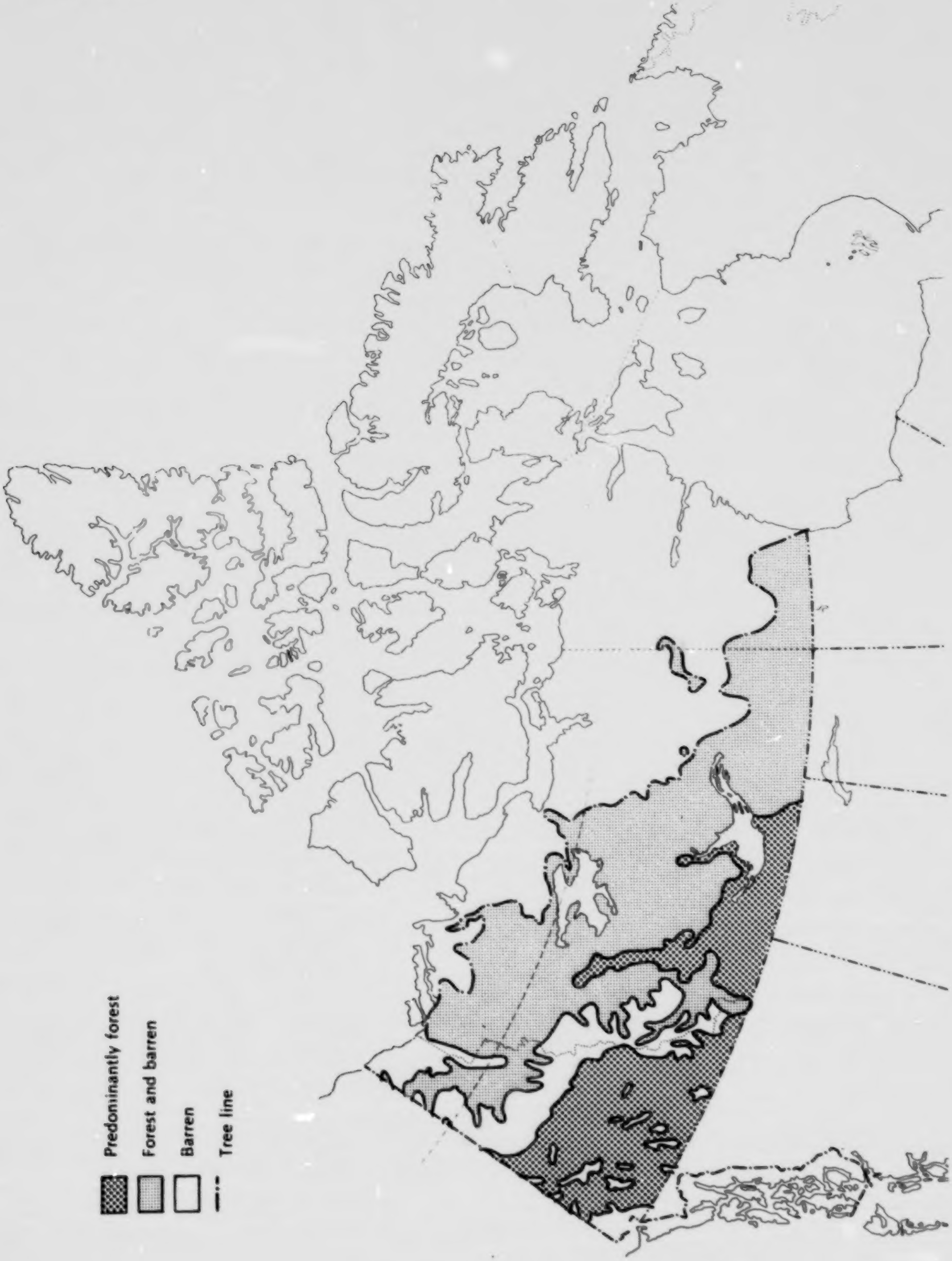
Table 7-1

Location, operator and installed capacity of existing hydroelectric installations

Territory	River	Name	Operator	Capacity (MW)
Yukon	Yukon	Whitehorse Rapids	NCPC	40
	Aishihik	Aishihik	NCPC	31.2
	Mayo	Mayo	NCPC	6.15
	Porter Creek	Porter Creek	YE	1.0
	McIntyre Creek	McIntyre Creek	YE	0.65
NWT	Snare	Snare Rapids	NCPC	7
	Snare	Snare Falls	NCPC	7
	Snare	Snare Forks	NCPC	9.6
	Talston	Twin Gorges	NCPC	20.8
	Yellowknife	Bluefish Lake	C	3.2

NCPC	Northern Canada Power Commission
YE	Yukon Electrical Company
C	Cominco

Figure 7-1:
Forest Regions


▨ Predominantly forest
▒ Forest and barren
☐ Barren
Tree line

8.0 Non-Renewable Resources

8.1 Mines and Minerals

8.1.1 General

Northern Canada is regarded as a major potential source of non-renewable resources. Historically mining, especially of gold and silver and more recently of lead and zinc, has been the basis of non-renewable resource development. The development of non-renewable resources in northern Canada suffers from numerous disadvantages relative to southern Canada. These include remoteness, severe climatic conditions, transportation problems, lack of inexpensive electric power and high labour costs. In addition, mining activity is prone to global price fluctuations, while the level of oil and gas exploration activity in Canada is increasingly influenced by political and other factors.

With the rise in gold prices to nearly $1,000 per ounce in 1980/81, many operations were re-established. Today, a healthy placer gold mining industry contributes $50 million annually to the Yukon economy.

The Klondike Gold Rush of 1898 is generally regarded as the first major period of mining activity in northern Canada. However, gold had first been reported at Fort Selkirk, Yukon in 1850 and mineral exploration had been proceeding for over two decades prior to the Klondike discovery, following the collapse of the California boom and the migration of prospectors to British Columbia and Yukon. The Klondike Gold Rush, like others before it, was short-lived and prospectors soon moved on to the Alaskan gold fields. In the Klondike, placer gold production became dominated after World War I by a few large operators, such as the Yukon Consolidated Gold Corp. By the middle of the present century placer gold production was declining and by 1966, when most placer operations in the area shut down, the Klondike had produced over $200 million in gold.

Copper was the second metal to be mined in Yukon in the early days of its history. It was recovered in high grade deposits near Whitehorse starting in 1900. Silver was discovered in the Mayo area in 1906 near the present town of Elsa. Production began in 1913. The discovery of rich silver-lead deposits at Keno Hill in 1919 led to mining production the following year.

In NWT, mineral production began in 1876, when 14.5 tonnes of mica worth $120,000 were mined from the Cumberland Sound area of Baffin Island. Radium was discovered in 1930 at Port Radium on Great Bear Lake and the Eldorado Mine was brought into production in 1933. In 1897, lode gold deposits were discovered in the Yellowknife area. These deposits were not extensively prospected until late in the summer of 1934. It was not until 1938 that gold production began at the Con Mine, and in the following year, both the Rycon and Negus Mines entered production.

Also of significance was the discovery of an oilfield at Norman Wells in 1920 by Imperial Oil. By 1932 a refinery was in operation to provide for the mining activity on Great Bear and Great Slave lakes and for the various Mackenzie Valley settlements. By 1939 petroleum production was 20,000 barrels (2,750 tonnes) per year, rising to 1.2 million barrels (165,000 tonnes) in 1944.

In the decade following the end of World War II, mineral production in both Yukon and NWT increased significantly. In Yukon, United Keno Hill Mines Ltd. was formed in 1945 and in 1947 began production of the silver-lead-zinc deposits around Elsa, while in NWT gold mining escalated in the Yellowknife area with the opening of the Giant Yellowknife and Discovery mines.

In the last two decades, however the development of the non-renewable resources of Canada's North has increased dramatically. This can be attributed to:

(1) the development of four substantial lead-zinc or lead-zinc-silver deposits at: Pine Point on the south shore of Great Slave Lake, 80 km east of Hay River; Faro, Yukon (Curragh Resources); Nanisivik, 29 km northeast of Arctic Bay on northwestern Baffin Island; and most recently, at the Polaris Mine on Little Cornwallis Island;
(2) the extension of the postwar demand for metals and growth in the world economy;
(3) the quest for non-ferrous metals including tungsten, uranium, tin and copper in both Yukon and NWT;
(4) an upsurge in placer gold activity in Yukon since the late-1970s, including the reworking of old tailings and the commencement of operations in previously unworked high-level gravels. This activity followed the rise in gold prices on the world markets; and,

(5) an increase in gold exploration and the development of numerous mines in NWT, including: the Camlaren Mine (closed in 1981) northeast of Yellowknife; the Cullaton Lake and Shear Lake mines west of Eskimo Point; the Lupin Mine near Contwoyto Lake; and the Salmita Mine, also northeast of Yellowknife.

Mining is traditionally a major industry and economic stimulator in both Yukon and NWT. In Yukon 5.3 per cent, and in the NWT 23.4 per cent, of the labour force were employed directly in the mining industry in 1985. Additional people were directly employed in the Yukon placer industry.

The value of mineral production in Yukon in 1985, shown in Table 8-1, amounted to $59,786,000. Gold was the largest revenue producer followed by silver, sand and gravel and lead. In NWT, minerals contributed $687,141,000 to 1985 incomes. As shown in Table 8-1, zinc ranked as the most valuable, followed by gold, lead, tungsten, sand and gravel, silver, and arsenic trioxide.

These production levels represent a very significant part of Canada's total output. Most (87.5 per cent) of the tungsten, 30 per cent of the lead, 26 per cent of the zinc, 19 per cent of the gold and 32 per cent of the silver produced in Canada come from the joint production of mines in Yukon and NWT.

8.1.2 Government Regulations, Assistance and Services (Minerals, Other Than Oil and Gas)

The management of mineral resources in Yukon and the NWT is the responsibility of the Northern Affairs Program, INAC. Regional offices in Yukon and Northwest Territories are responsible for administration through seven mining districts, each responsible for the administration and disposition of mineral rights within its district (Table 8-2). Regional and district geologists undertake mineral property examinations, collect rock and mineral specimens, advise industry, government departments and scientists on geological problems and undertake geological evaluations on mining developments when requested. A number of acts and regulations provide an administrative structure under which exploration and development can proceed in an efficient and orderly fashion and ensure the safety of mines and protection of miners.

In NWT, the *Canada Mining Regulations* govern the disposal and exploitation of mineral rights. A prospector's licence, which is obtainable from any mining recorder for NWT, is required in order to prospect, stake claims or acquire any mineral or exploratory right. Block-type claim staking is provided for a maximum area of 2582.5 acres. Claims are marked by four corner posts and boundary posts every 1500 feet. Work must be performed to the value of $2.00 per acre per year to maintain claims in good standing and leasing is mandatory after 10 years. Exploratory rights (prospecting permits) covering large areas are also available.

In Yukon, two statutes govern the administration and disposition of most mineral rights. The *Yukon Quartz Mining Act*, which governs hard-rock mining, provides for two-post staking of 51.65 acre claims with required representation work set at $100 per claim per year. Prospector's licences are not required, leasing is not mandatory after a specified time period and there are no exploratory rights granted. The *Yukon Placer Mining Act* controls placer mining operations of unconsolidated deposits of precious metals. Claims are staked along creeks or streams using surveyed base lines if the creek has been surveyed. Annual work to the value of $200 is required to maintain claims in good standing. Placer leases covering one to five miles are also available.

Other regulations made pursuant to the *Territorial Lands Act* are applicable to both territories. The *Territorial Dredging Regulations* apply to the operation of dredges on rivers in Yukon and Northwest Territories and the *Territorial Coal Regulations* govern the administration and disposition of coal rights in the territories.

Another group of legislation deals with the safety of mines and protection of miners. The *Mining Safety Ordinances and Rules* ensure that safety inspections are made at all mines in Yukon. NWT Government assumed responsibility for mines in its territory in 1980. The *Yukon Blasting Ordinance* governs procedures for underground and surface blasting operations and the storage and handling of explosives in Yukon. In the NWT this is regulated by the *Explosives Use Ordinance*.

8.1.3 Mineral Exploration and Production — Yukon

In 1985, the mineral production of the Yukon was dominated by the placer gold industry, which accounted for 74 per cent of the mineral production (Table 8-3). Yukon mineral production value declined slightly to 0.4 per cent of the value of total Canadian metallic mineral production in 1985 compared with 0.5 per cent in 1984. Although the amount of silver produced declined by over 16 per cent, lower prices resulted in a decline in production value by almost 32 per cent.

United Keno Hill Mines Limited's silver-producing mines at Elsa constituted the most important mineral operation in Yukon during 1985. This company produced almost 40,000 kg of silver using a workforce of 176.

For the third consecutive year, three small-scale seasonal silver mine operations contributed to Yukon's silver output. In the Keno Hill — Galena Hill area, Archer, Cathro and Associates (1981) Ltd. mined some 313 tonnes of high-grade silver ore, and Springmount Operating Company mined another 68 tonnes of high-grade silver-lead-zinc ore. Dawson Eldorado Mines Ltd. shipped a total of 907 tonnes of silver-lead ore from its Plata-Inca Mine located 176 km northwest of Ross River.

Cyprus Anvil Mining Corporation's zinc-lead mine at Faro did not operate in 1985. In November, after extensive negotiations among Dome Petroleum Ltd. (the majority shareholder), Curragh Resources Ltd., the federal and territorial governments, and other interested parties, the property was sold to Toronto-based Curragh Resources Ltd. The first shipment of concentrates was made in the summer of 1986.

The Yukon placer mining industry consisted of 150 to 175 operations, employing 500 persons on a seasonal basis. Production of crude or impure gold claimed for royalties increased slightly in 1985 to 3,098 kg compared with 2,960 kg of gold in 1983. An additional 50 kg of gold was sold to jewelry manufacturers in Yukon.

During 1985, Total Erickson Resources Ltd., under a development agreement with AGIP Canada Ltd., continued developing AGIP's Mount Skakum gold property located southwest of Yellowknife. Production commenced early in 1986.

Mineral exploration expenditures increased slightly during 1985 to an estimated $25 million compared with about $22 million in 1984 and only $11 million in 1983. The most active areas were in the Wheaton River area, south of Whitehorse, for gold-silver deposits; the Mount Nansen/Mount Freegold area west of Carmacks for gold deposits; the Rancheria area, west of Watson Lake, for silver-lead-zinc, tin and copper deposits; and the Ketza River area south of Ross River for gold and silver deposits.

8.1.4 Mineral Exploration and Production — NWT

Mineral production in Northwest Territories in 1985 was valued at $642 million, a 12.6 per cent decline compared with $748 million in 1984. Much of the decrease in production value was due to the sharp decline in zinc prices in 1985 and a 7 per cent decline in already low gold prices.

Eight mining companies treated ore from 10 mines at 10 milling plants. Low gold and silver prices during the year caused Terra Mines Ltd. to close its Silver Bear silver mine in April 1985 and Royex Gold Mining Corporation (formerly Callaton Lake Gold Mines Ltd.) closed its smally Shear Lake gold mine in September.

Despite the closing of the Shear Lake mine, and continuing low prices, gold production in NWT increased by 2.7 per cent over the previous year. Echo Bay Mines Ltd.'s Lupin Mine, located 600 km northeast of Yellowknife, is the second largest gold-producing mine in Canada. In 1985, it produced 6,069 kg of gold and 1,186 kg of silver. The company embarked upon an aggressive on-site development program designed to double its reserves. Although Giant Yellowknife Mines Ltd.'s Salmita Mine, located 250 km northeast of Yellowknife, has been very productive since operations commenced in 1983, its reserves are expected to be depleted by year-end 1986. No new gold mines were opened in 1985.

During 1985, Nanisivik Mines Ltd., Pine Point Mines Ltd. and Cominco Ltd. (Polaris Mine), the three zinc-lead-producing operators, accounted for a total of 340,000 tonnes of zinc and 91,000 tonnes of lead. This represented little change from the previous year's zinc production but was a 5.5 per cent increase in lead production. However, due to decreases in prices, the value of zinc sales fell by 11.6 per cent and the value of lead sales fell by almost 33 per cent compared to 1984.

Pine Point Mines Ltd. retained its position as the leading producer of both zinc and lead. However, at the end of 1985, it announced revised production plans for the next two years which will allow the company to maximize production rates from the most economic source of ore available, and to run the mill at full capacity. Despite these and other measures which will be taken to reduce unit production cost, if the current low prices continue, the life of the mine beyond mid-1987 is uncertain.

The mineral industry of the Northwest Territories accounted for 87.5 per cent of the tungsten, 29.4 per cent of the lead, 26 per cent of the zinc, 15.1 per cent of the gold and 2.8 per cent of the silver produced in Canada during 1985. This production accounted for 7.2 per cent of the value of Canadian metallic mineral production, a decrease from 8.5 per cent in 1984. The operating mines and mills employed an average of 2,503 persons during 1985.

A small-scale gold property located 20 km northeast of Yellowknife is being developed by Goldrich Resources Inc. First production began in early 1986 and discussions are still underway between Goldrich Resources Inc. and Giant Yellowknife concerning the milling of the ore. Terra Mines Ltd. continued development of its Bullmoose Lake gold property 80 km east-southeast of Yellowknife. If its early 1986 pilot scale test proves successful, Terra Mines Ltd. plans to place the property into production in 1987 through an expansion of its pilot plant mill. Highwood Resources Ltd. completed a large part of the work required for a feasibility study of its Thor Lake beryllium-rare earth property located 150 km east of Yellowknife.

Mineral exploration and development expenditures increased in 1985 to an estimated $45 million compared with approximately $40 million in 1984. Over half of the expenditure was on gold exploration and gold property development in the Slave geological province located north of Yellowknife. A total of 136 exploration and development projects were carried out in NWT in 1985. Exploration and development of gold properties accounted for 94 per cent of the projects. Ten projects were directed to uranium exploration and four to silver exploration.

Gold exploration was concentrated in the Slave Province with other gold exploration scattered in the Keewatin and in the southern Nahanni area. Uranium activity is scattered throughout Keewatin with a concentration near Baker Lake, the Nonacho Basin and the Coppermine River area, east of Great Bear Lake. Base metal exploration is concentrated in the Nanisivik and Pine Point areas.

8.2 Oil and Gas

8.2.1 Introduction

In the late 1950s and early 1960s the government, recognizing oil and gas exploration and development as a valuable instrument for economic development in the North, evolved a series of policies to encourage and facilitate northern oil and gas exploration.

Two significant events influenced northern exploration in the late 1960s. One was the release of information concerning the magnitude of the discovery of oil and gas at Prudhoe Bay, Alaska. The second was the creation of Panarctic Oils Ltd. in 1967 to explore in the arctic islands. Most of the known potential oil and gas lands (some 243 million hectares) were held under exploratory permits by industry (186 million hectares) from 1968 to 1972.

In 1976, the federal government announced its "National Energy Strategy for Self-Reliance", an assessment of Canada's energy prospects in relation to the changing situation in world oil prices and supplies. Federal initiatives were undertaken to provide an inventory of non-renewable resources with a view to developing a secure supply of hydrocarbons in keeping with the goal of self-reliance. This "need-to-know" was also recognized in the Joint Policy Statement (EMR & INAC) of 1976. The federal initiatives then included both tax incentives and the creation of Petro-Canada to increase the pace of exploration; however, these initiatives were largely offset by continued uncertainty affecting industry plans.

The National Energy Program, introduced in late 1980, seeks energy security by 1990 and an opportunity for greater participation by Canadians in the petroleum industry. The *Canada Oil and Gas Act* proclaimed on March 5, 1982, provides a regulatory basis for the management of Canada Lands and establishes the certainty of tenure necessary for industry planning. Amendments to the *Production and Conservation Act* (under the new Act) strengthen existing provisions for the supervision and control of oil and gas activities in the interests of safety and the prevention of pollution.

The current review of oil and gas policy may bring changes in taxes and incentives, and reduce regulatory complexities. The new policies are expected to continue to favour a strong oil and gas industry in the North.

As with other non-renewable resources, many of the oil and gas reserves now known to exist in northern Canada will require large expenditures on transportation systems and northern infrastructures prior to commercial development. Several transportation system proposals are being studied to provide for a means of transporting and storing oil and gas for southern markets, taking into account the concerns of the native people and the protection of the environment.

Current oil and gas production is limited, and the industry does far more exploration than production in Yukon and the NWT. Indications are that substantial reserves of both oil and natural gas are present in the North and that northern Canada could become a major supplier of Canada's energy needs in the future.

8.2.1.1 Current production, processing and refining

The Norman Wells oilfield is one of the largest in Canada, with over 100,000,000 m^3 of oil in place. With the exception of Panarctic Oil Ltd.'s small High Arctic "Bent Horn" well, which produces 30 days annually, Norman Wells is the only producing oil field north of 60a/°N, producing about 173,400 m^3 of oil and 46,600,000 m^3 of gas a year. The only refinery north of 60a/°N is also located at Norman Wells and is operated by Imperial Oil Ltd. In 1981, the total refining output of all products was 99,800 m^3.

The use of modern development techniques by Esso and the installation of additional productive capacity will increase the recovery factor for these reserves from 17 per cent to over 40 per cent. The reserves are an estimate of the total oil entrapped within the limestone and only a fractional portion of these reserves can be recovered through primary, secondary and tertiary production methods; recovery depends in part on the nature of the trapping rocks, the depths and the fluids associated with the petroleum. Production is expected to increase from 425 mb/3 to 4250 mb/3 of oil and natural gas liquids a day for the first five years of the project, after which the rate of production will gradually decline.

In July, 1981 government approval was given to Interprovincial Pipelines (NW) Ltd. for construction of an oil pipeline from the Norman Wells oilfield to Zama, Alberta, to interconnect with the pipeline from there to Edmonton.

However, a delay in constructing facilities for extensive production improvement as well as a delay in pipeline construction was agreed to by the Minister of Indian and Northern Affairs in response to local concerns. Field construction on the oilfield expansion began in 1983 and on the pipeline in 1984. The $1.3 billion project was completed on schedule in March 1985.

The Pointed Mountain field, located in the southwest sector of NWT is the only commercially producing gas field in northern Canada. In 1981, the field's total production was approximately 350,910,000 mb/3.

8.2.1.2 Acts and Regulations

Oil and gas activities are administered through the *Canada Oil and Gas Act and Regulations*, and the *Canada Oil and Gas Production and Conservation Act and Drilling Regulations.*

Oil and gas rights in the North were formerly administered under the *Canada Oil and Gas Land Regulations* (pursuant to the *Territorial Lands Act* and *Public Lands Grants Act*). The Regulations authorized the issuance of exploration permits and oil and gas leases by application on previously unexplored Canada Lands and the disposition of previously explored lands returned to the Crown (Crown Reserves) by public tender. All disposals by public tender were suspended from 1969 to July 1979, when Dome Petroleum acquired an Exploration Agreement on 770,000 hectares in the M'Clure Strait between Melville and Banks islands. All other dispositions were suspended from mid-1972 to mid-1977, when the Petro-Canada preferential rights were promulgated. Petro-Canada ultimately acquired some 37,500,000 hectares of new exploration rights in the eastern Arctic, the interior (Mackenzie) Plains and the Arctic Islands.

The 13 major holders of exploration rights in the North include Petro-Canada, Dome, Canterra, Panarctic, Esso (Imperial), Gulf, Shell and Mobil (roughly in order of net holdings). A characteristic of recent years is the concentration of exploration activities in the more promising areas, representing a consolidation of activities following earlier, more widespread exploratory work in the early 1970s. Consequently, there has been more offshore exploration, especially in the Sverdrup Basin and the Beaufort Sea and, since 1979, in the eastern Arctic.

Proposed government regulations to be issued by the authority of the *Canada Oil and Gas Production and Conservation Act* include the draft *Canada Oil and Gas Geophysical Regulations*, the draft *Canada Oil and Gas Pipeline Regulations*, the draft *Canada Oil and Gas Production Regulations*, the draft *Structure Regulations* and the draft *Diving Regulations.* Each is responsible for specific management aspects. In addition, under the *Territorial Land Use Regulations*, all drilling operations and most exploration activities on land require a land use permit. Various conditions attached to these permits ensure sound land management and a minimum of disturbance to the environment.

The *Canada Oil and Gas Act* (Bill C-48) was introduced in December, 1980 and proclaimed on March 5, 1982. This legislation is one of the major elements of the National Energy Program. Under this Act the Canadian ownership of production will be increased through the requirement for a 50 per cent Canadian ownership at the production stage and the reservation of a 25 per cent interest to the Crown in all rights granted. This Crown share of production may be assigned to a Crown corporation such as Petro-Canada or may be offered to Canadian companies through public tender. As a condition for granting a production licence, the Act requires a minimum of 50 per cent Canadian beneficial ownership of the licence, a basic royalty of 10 per cent and an additional royalty of up to 40 per cent of the net profits from production. To accelerate the exploration and development of frontier resources, the terms of replacement rights for existing oil and gas rights have been shortened and more stringent work requirements demanded. The Act also puts into place an oil and gas rights management scheme based upon exploration agreements covering large exploration concession areas and production licences covering individual fields.

With the passage of the *Canada Oil and Gas Act*, a need for more effective use of scarce human resources and coordination between the National Energy Policy and northern national objectives was recognized by the two ministers responsible for oil and gas management of Canada Lands in the North. Accordingly, the oil and gas management groups of Energy, Mines and Resources Canada (EMR) and Indian and Northern Affairs Canada (INAC) were merged into a single Canada Oil and Gas Lands Administration (COGLA). The administrator of COGLA reports to the two ministers through the respective deputy ministers and receives from them policy direction respecting northern oil and gas policy. A policy review committee consisting of, among others, the assistant deputy minister, Energy, the assistant deputy minister, Northern Affairs and the administrator, COGLA, provides policy direction to COGLA to ensure that uniformity and balance are achieved.

8.2.2 Oil and Gas Discoveries and Reserves

Hydrocarbon accumulations are found in porous, sedimentary rocks where appropriate trapping structures occur. Nearly one-third of the area of NWT and Yukon is underlain by sedimentary rocks and theoretically capable, therefore, of containing hydrocarbons (Table 8-5). These rocks can be divided into thirteen hydrocarbon potential provinces (Figure 8-3). Although over 950 wells have been drilled in northern Canada, an overall appreciation of the hydrocarbon potential is possible only in general terms. Further drilling is required in certain areas before definitive statements can be made.

Bearing this in mind, the geological provinces with the greatest potential are thought to be the Sverdrup Basin and the Mackenzie Delta-Beaufort Sea. Other areas regarded as possessing moderate potential, as yet unconfirmed, are the Banks Basin and the eastern Arctic (Baffin Bay-Davis Strait area). In addition, limited amounts of oil have been found in the Franklinian Geosyncline (oil at Bent Horn on southwest Cameron Island), on the Mackenzie Plain (oil at Norman Wells, NWT), and in the Liard Plateau and Range (gas at Pointed Mountain, NWT and at Kotaneelee, Yukon). Hydrocarbons in non-commercial amounts have been encountered in the Great Slave Plain, Eagle Plain, Peel Plain, Anderson River and Peel Plateau areas. No hydrocarbon discoveries have yet been made in the Old Crow Basin, the Whitehorse Plain, the Great Bear Plain, and the Arctic Stable Platform.

Until 1981, details of drilling activities were summarized in *Oil and Gas Activities*, published annually by The Northern Oil and Gas Policy and Operations Coordination Division of Indian and Northern Affairs Canada, Ottawa. Since 1982, the annual report on the administration of Canada Oil and Gas Lands, published by COGLA, has detailed the oil and gas activities in the North.

The Canadian Petroleum Association annually assesses the quantities of remaining established hydrocarbon reserves in Canada. Latest estimates indicate that liquid hydrocarbons from north of 60a/°N constitute approximately 3 per cent and natural gas between 20 per cent and 25 per cent of Canada's total marketable quantity. However, some idea of the potential contribution of northern Canada to Canada's total hydrocarbon reserves is shown in Table 8-6, compiled by EMR. These data estimate the likelihood of existence (i.e., probability) of oil and gas resources in the various regions of Canada. They show a high (90 per cent) probability that northern Canada has approximately one-quarter of Canada's oil reserves and one-third of Canada's gas reserves.

8.2.3 Current Activities

8.2.3.1 Mackenzie Delta-Beaufort Sea (Figure 8-4)

Many of the Canadian subsidiaries of large multinational oil companies undertook intensive exploration programs in the Mackenzie Delta in the early 1970s. Oil was first discovered in the Tuktoyaktuk Peninsula in 1969 by Imperial Oil Ltd. In 1971, large gas deposits were discovered in the Taglu area of Richards Island by Imperial and in the Parsons Lake area by Gulf Canada Ltd. in 1972. In 1973, Shell Canada Ltd. made a number of oil and gas discoveries in the Niglingtak and Kugpik areas of the Delta. The cancellation of the Mackenzie Valley Pipeline Project following the Berger Commission in 1977 led to the virtual cessation of further land-based drilling until 1982. However, activity has increased since 1982 with further exploration of the Tuk Peninsula.

Recent activity has been concentrated in the waters of the Beaufort Sea. Esso has constructed a number of artificial islands from which drilling has taken place. Oil discoveries were made at Adgo in 1974, at Issungnak in 1980, West Atkinson in 1982, Itiyok in 1983 and Nipterk in 1985. In deeper waters, Dome Petroleum has undertaken an ambitious exploration program using drillships. Between 1976 and 1980, a number of oil discoveries were made at the Nektoralik, Koakoak, Kopanoar, Ukalerk and Tarsiut wells. In intermediate waters, Gulf has found oil at Pitsiulik and Amauligak. Both wells were drilled from the company's floating drilling platform barge. In many instances, gas has also been found. "Average expectation" potential resources in the Mackenzie Delta-Beaufort Sea area are 1,347 million m^3 of oil and 1,865 billion m^3 of gas.

However, offshore exploration is hampered by severe physical conditions in the Beaufort Sea. The drilling season is short and pack ice conditions are extremely variable from year to year. Dome's Ice Class III experimental icebreakers, *Kigoriak and Robert Lemeur* are currently being used to increase the drilling season for floating drill operations. There are also environmental concerns related to the consequences of a possible uncontrolled blow-out and the difficulties of controlling such an event if it occurred toward the end of the drilling season in October.

During the past several seasons, operators have been attempting to extend the drilling season using caisson retained islands, Esso's CRI, Dome/Gulf Tarsiut concrete caisson island, and Gulf's Mobile Arctic Caisson, submersible platforms (Dome's SSDC) and ice-resistant drilling barges (BeauDril's CDU). Gulf's two Ice Class IV breakers have augmented the ice-combatting capability for floating operations. All drilling systems remain limited to varying degrees by the continuing requirement for same-season relief well capability. However, the technology is improving the ability to drill in the harsh environment. Continuing policy reviews will take into account the technological ability to work earlier and later in the season.

8.2.3.2 High Arctic (Figure 8-5)

Gas was first discovered in 1968 at Drake Point on the Sabine Peninsula of eastern Melville Island. In 1970 and 1971, two further gas discoveries were made, on King Christian Island and at Kristoffer Bay on Ellef Ringnes Island respectively. In 1972, a second major gas field was discovered on the west side of the Sabine Peninsula in the Hecla area. The first oil to be discovered was in the Bent Horn area of southwest Cameron Island in 1974. Land-based drilling and seismic activity reached a peak in 1973, with 83 wells and over 51,000 km of seismic survey completed that year for NWT and Yukon Territory.

Panarctic Oil Ltd., a consortium of companies in which the federal government, through Petro-Canada, has a 53 percent controlling interest, is the principal operator and contractor in the Arctic Islands. Since 1975, the consortium's exploration activity has focused on the delineation of known onshore reserves by traditional drilling methods and the development of offshore ice platform drilling. The objectives of the latter are to delineate the extent of the offshore portions of the gas fields already discovered and to test further geologic structures which lie offshore. New technology has evolved with the use of either modified land drilling rigs or specifically designed rigs supported on artificially thickened ice.

By early 1983 exploration had resulted in the discovery of 13 gas fields, with "average expectation" potential resources of 2257 billion m^3 and four oil fields with resources of 686 million m^3.

In 1976, the first large geologic structure offshore was drilled at Jackson Bay, resulting in an important gas discovery; between 1978 and 1980 further important discoveries of gas were made at Whitefish, west of Lougheed Island. In early 1981, oil was discovered at three other wells to the east and west of Lougheed Island Cisco, Skate and Maclean. Further drilling is under way to evaluate these discoveries. In 1985 two significant oil and gas discoveries were tested at East Drake and Cape Allison.

In 1985, Panarctic Oils Ltd. installed production structures and facilities at their Bent Horn A-02 well on Cameron Island. During May and June, the well produced some 100,000 barrels of oil. On August 26, 1985, the crude was loaded from a storage tank into the Canadian bulk ore/oil vessel MV Arctic, destined to Petro-Canada's Montreal refinery.

8.2.3.3 Eastern Arctic

In the mid 1970s, the petroleum industry expressed interest in exploring for hydrocarbons in the offshore areas of the eastern Arctic, between Baffin Island and western Greenland. Several areas are of potential hydrocarbon significance the Thule Basin off Greenland, Lancaster Delta, Home Bay Delta, Cumberland Delta, Lancaster Sound and Jones Sound. Canterra, Esso, CMO (Consolidex-Magnorth-Oakwood) and Petro-Canada are the major operators with interests in these areas.

Immediate concern was expressed as to the impact drilling activity might have upon the marine environment. Before drilling was permitted, therefore, the federal government undertook a comprehensive scientific study of the marine environment under the Eastern Arctic Marine Environment Studies (EAMES) Program. The southernmost element of the program was completed in 1979. By late 1980, two wildcat wells had been drilled south of Cape Dyer, one of which was a gas discovery. The physical constraints of drilling in this region include very deep water, stormy conditions and floating icebergs. The most northerly element of the program began in 1980, after the Environmental Assessment and Review Panel (EARP) recommended a regional planning study for the Lancaster Sound area and rejected the application by Norlands et al to drill a test well in the Dundas structure.

8.3 Land Use and Environmental Concerns

The search for minerals and oil and gas in northern Canada has raised environmental and social concerns. A cornerstone of federal government policy has been that northern development can only be sanctioned if all possible effort is made to minimize the impact of such activity upon the environment, both biological and physical, and upon the native peoples.

Various measures have been taken to promote this general objective. One of the most important steps taken by the federal government was the passing of the *Territorial Land Use Regulations* and the *Northern Inland Waters Act and Regulations* in the early 1970s. Other initiatives include: (a) the 1973 Cabinet decision that all federal programs, projects and activities must be assessed early in the planning process for potential adverse effects on the quality of the environment which may involve the preparation of Environmental Impact Statements by industry and their assessment by federal government agencies prior to the granting of regulatory authorities; (b) the establishment of government enquiries into the social and economic effects of major development proposals; (c) the undertaking of baseline data collection studies involving both industry and government, such as the Beaufort Sea Studies and the Eastern Arctic Marine Environmental Studies (EAMES) Program and the Environment Canada-Indian and Northern Affairs Land Use Information Series mapping program, prior to resource exploration; (d) the support of research in the North; and (e) announcement of the Northern Land Use Planning program in 1981, directed to providing a framework for decision making on resource-related activities, and thus best usage of the natural resources in Yukon and NWT. This is proposed as a joint federal-territorial program undertaken in conjunction with the native organizations, and including public input.

8.3.1 Mines and Minerals

A number of specific land use and environmental issues are associated with mineral exploration and production. For example, with the rapid growth of placer mining in Yukon, the magnitude of environmental impact has grown significantly. Although most placer activities are small, an increasing number are large operations. Since placer mining is subject to the *Yukon Placer Mining Act* (1906), which takes precedence over the *Territorial Lands Act*, the *Territorial Land Use Regulations* (1971) do not apply to land staked under it. In some instances, Land Use Regulations have been circumvented by staking claims under the *Placer Mining Act* to provide access trails. Environmental problems related to placer operations include the disturbance of large areas along river valleys, stream siltation and reduction of water quality, with its resulting downstream effects on fish and aquatic habitat.

The issue was reviewed by a public committee which reported in January, 1984. Following this report, strict effluent limits have been required in placer mining operations on salmon streams through the Yukon Water Board licences. Funds have also been made available through the Mineral Sub-Agreement to the Yukon Economic Development Agreement to sponsor research to improve the economic and Environmental performance of the placer mining industry.

The potential development of mineral deposits is central to a number of land use and related concerns. For example, in NWT, the potential for development of the lead-zinc, gold and uranium deposits in the Bathurst-Coppermine areas conflicts with Parks Canada suggestion for a National Park in the Bathurst Inlet area. Mining activities in the Mackenzie Mountains have potential for lowering water quality in rivers which eventually pass through Nahanni National Park. However, all major mineral development projects must undergo an environmental assessment.

8.3.2 Oil and Gas

In the late 1960s, land use concerns related to seismic activity, especially in the Mackenzie Valley. Destruction of vegetation and the uncontrolled use of tracked vehicles in summer led to the meltout of ice-rich permafrost terrain and long-term physical damage to the land. Subsequent improvements in industry operating procedures and the strict application of the *Territorial Land Use Regulations* (e.g. restriction of cross-tundra vehicle movement to winter) have mitigated potential long-term damage to the land. Current terrain disturbance problems are restricted to localities such as borrow pits, drilling waste fluid disposal sumps and emergency situations where the movement of heavy vehicles across the tundra in summer might be permitted.

Potential for the most serious environmental problems appears now to be related to the drilling operation itself (e.g., blow-outs) and the disposal of waste drilling fluids, which are sometimes toxic. For land-based drilling, the *Territorial Land Use Regulations* require that these fluids be buried in below-ground sumps which will freeze in place and be permanently contained within the permafrost. These procedures have met with only partial success and the regulatory agencies and industry are jointly seeking improved disposal methods and more efficient drilling procedures. With offshore drilling in both the Beaufort Sea and the eastern Arctic, concern relates to the difficulty of containing a sea-bottom blow-out, especially if it were to occur just prior to the shut-down of operations in the late autumn. The flow of hydrocarbons beneath the ice throughout the winter could cause irreversible damage to aquatic life and possibly destroy the sensitive marine ecosystem on which many native peoples depend for their livelihood. A number of oil spill and blow-out contingency measures have been prepared by both industry and government.

8.3.3 General Information on ESRF

The Environmental Studies Revolving Funds (ESRF) are sources of funding for environmental and social studies deemed necessary for the exploration and development of oil and gas on the Canada Lands. There are two funds; the ESRF (INAC) concerns questions related to onshore and offshore activities in Canada's North, and is administered for the Minister of Indian and Northern Affairs by the Northern Affairs Program. The ESRF (EMR) addresses offshore activities in southern Canada and is administered for the Minister of Energy, Mines and Resources by COGLA.

Both funds operate principally on the basis of priority subjects struck annually by the ministers. Study proposals are invited to address the needs. In 1983, the following priority subjects were identified: waves; icebergs; sea bottom ice scour; social issues north; social issues south; oil spill research and countermeasures; bottom sediment transport and effects monitoring. 24 studies worth $2 million are underway concerning these subjects and 19 of them touch northern areas.

The funds are replenished through levies on the oil and gas interest owners and administered through joint government-industry advisory boards. The Northern ESRF Advisory Board is chaired by INAC, with representation from the departments of Environment, Fisheries and Oceans and Energy, Mines and Resources, as well as the oil and gas industry, north and south.

Studies within ESRF must be regional or national in scope and must be directly related to oil and gas exploration or development decision-making. All interest owners and holders share in their cost and the ESRF serves as the mechanism to equitably distribute the costs.

Anyone or any organization interested in, and capable of doing the required studies may submit proposals to the funds. It is expected that individual experts or members of organizations such as consulting companies, universities, private interest groups, oil and gas companies or federal and provincial government agencies will participate. Calls for study proposals are published regularly in the ESRF news bulletin called "Update". Copies of "Update" as well as ESRF guidelines relating to study proposals and applications for payment are available by writing the ESRF managers. The address for the northern ESRF is:

Environmental Studies Revolving Fund
355 River Road
Tower B — 17th Floor
Ottawa, Ontario
KIA 0E4
(613) 991-1992

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Table 8-1

Mineral production chart, 1979-86. NWT and Yukon (1000s)

Mineral	1979	1980	1981	1982	1983	1984	1985	1986(P)
NWT:								
Gold ($)	61 868	96 920	85 495	91 415	144 570	191 071	177 079	219 306
(g)	5 356	4 209	4 825	6 113	8 634	12 732	12 713	13 380
Silver ($)	34 771	41 331	13 465	16 073	33 743	20 361	9 083	5 842
(g)	83 358	53 000	33 000	51 000	74 000	59 000	33 000	23 000
Copper ($)	942	679	613	419	214	130	46	1
(kg)	397	262	277	215	102	69	23	.5
Lead ($)	80 118	55 853	44 680	46 367	47 901	66 647	44 489	54 282
(kg)	60 646	51 337	45 522	63 955	81 161	90 198	77 083	80 591
Zinc ($)	205 600	172 556	159 764	229 110	269 951	386 813	356 415	350 476
(kg)	213 323	175 685	133 604	213 523	234 883	274 920	284 223	283 557
Sand & Gravel ($)				41 482	32 479	36 323	8 981	4 775
(tonnes)				6 625	5 905	7 249	6 803	3 000
Stone ($)				1 268	14 601	4 617	434	900
(tones)				323	2 409	729	163	250
Tungsten ($) (E)	52 924	67 464	43 263	38 353	11 221	33 584	38 918	
(kg)	3 254	4 007	2 515	2 925	1 126	3 112	3 529	1 786
Arsenic Trioxide ($) (E)			561	3 862	2 345	5 837	1 696	
(kg)							4	4
TOTAL ($)	436 223	434 985	347 841	468 349	557 198	745 383	637 141	635 582
Yukon:								
Gold ($)	13 749	63 029	66 382	39 721	50 337	44 419	42 689	65 890
(g)	1 190	2 982	3 746	2 656	3 006	2 960	3 065	4 020
Silver ($)	54 218	114 120	32 339	29 943	6 891	18 825	13 098	16 897
(g)	129 982	147 000	80 000	95 000	15 000	54 000	47 000	66 000
Lead ($)	103 374	71 558	54 935	25 733	307	1 539	848	24 436
(kg)	78 250	65 771	55 970	35 493	520	2 083	1 470	36 279
Copper ($)	18 442	27 082	20 123	14 654	3 977		19	41
(kg)	7 778	10 433	9 094	7 510	1 904		10	20
Coal ($)								208
(tonnes)	23	17	21					17
Zinc ($)	109 461	88 313	94 237	58 519	31	244	137	67 438
(kg)	113 573	90 938	78 806	54 537	27	173	109	54 562
Sand & Gravel ($)				550	1 438	5 105	2 995	8 700
(tonnes)				463	480	3 074	1 185	3 450
TOTAL ($)	299 244	364 102	268 016	169 120	62 987	70 132	59 786	183 610

(P) Preliminary Figures
(E) Estimated
Source: Mineral Policy Sector, Energy Mines and Resources, and Northern Resources and Economic Planning Branch, Indian and Northern Affairs.

Table 8-2

Mining districts of the NWT and Yukon, together with claims recorded in 1983 and 1984

Territory	District	Office	Claims recorded 1983	Claims recorded 1984
Yukon	Mayo	Mayo	540	298
	Dawson	Dawson	977	2823
	Watson Lake	Watson Lake	1418	1975
	Whitehorse	Whitehorse	1675	3056
Northwest Territories	Mackenzie	Yellowknife	430	395
	Nahanni	Yellowknife	29	12
	Arctic and Hudson Bay	Yellowknife	88	81

Note: Does not include placer activity, mostly in Dawson area. In 1983 there were 2,054 placer claims and 279 placer leases; in 1984, 1,845 placer claims and 207 placer leases.

Table 8–3
Yukon Mining and Development Summary 1985

Operator	Mines	People (#)	Production (tonnes)	Au (gm)	Ag (gm)	Milled (kg) Pb (kg)	Zn (kg)	Pe (kg)	Stripped (m^3)	Surface Diamond	Drilling Percussion	Underground Drilling	Underground Horizontal	Development Vertical
ERICKSON	Mt. Skukum	55	0	0	0	0	0	0	0	0	0	0	960.5	114.9
SPRINGMOUNT	Mt. Keno	3	68	0	0	0	0	0	0	0	0	0	0	0
UKHM	Husky Ruby Silver King Bermingham Sime & 35 Miller Hector Elsa Calumet 1 & 15 Blackcap Bellekeno Lucky Queen	184	56,677	0	33,630,358.2	812,451.6	48,344.7	0	0	8,343.9	180.4	1,819.4	100.3	0
DAWSON ELDORADO	Plata & Inca	18	907.2	0	3,584,275	589,680	0	0	0	394.6	0	362.5	757.1	0
ARCHER CATHO	Shamrock	7	313.3	0	2,792,756	0	0	0	0	0	0	0	0	0
CANAMAX	Ketza	36	0	0	0	0	0	0	0	0	0	0	407	0
TOTAL		303	57,965.8	0	40,007,389.2	1,402,131.6	48,344.70	0	0	8,738.5	180.4	2,181.9	2,224.9	114.9

Table 8-4

Summary details of major mining operations, NWT, 1984

Operation*	Location	Type	Product	Milled (tonnes x 1000)	Reserves (tonnes x 1000)	Reserve Grade
Canada Tungsten Mining Corp (205)	Tungsten	underground	tungsten	322	2 540	1.3% WO_3 (tungsten trioxide)
Cominco Ltd. — Con (372)	Yellowknife	underground	gold, silver	224	1 542	14.4 g gold per tonne
Cominco Ltd. — Polaris (272)	100 km northwest of Resolute	underground	zinc, lead	846	19 960	14.3% zinc 3.8% lead
Echo Bay Mines Ltd. (359)	Contwoyto Lake	underground	gold, silver	491	3 141	12.2 g gold per tonne
Giant Yellowknife Mines Ltd. — Giant (305)	Yellowknife	underground and open pit	gold, silver	295	959	8.23 g gold per tonne
Giant Yellowknife Mines Ltd. — Salmita (118)	250 km northeast of Yellowknife	underground	gold, silver	55	80	29 g gold per tonne
Nanisivik Mines Ltd. (201)	Nanisivik	underground	zinc, lead, silver	693	3 150	9.5% zinc 0.5% lead
Pine Point (650)	Pine Point	open pit	zinc, lead	2 279	21 770	6.0% zinc, 2.7% lead
Royex Gold Mining Ltd. (147)	Culiaton Lake	underground	gold, silver	139	953	7.2g gold per tonne
Terra Mines Ltd. (75)	Camsell River	underground	silver, lead, zinc, copper	21	n/a	n/a

* Number in parentheses indicates employees
n/a Not applicable

Table 8-5

Total area and volume of sedimentary rocks in Yukon, NWT and the western provinces of Canada

Region	Total Area (km^2 x 1000)	Volume of Sediments (km^3 x 1000)
Yukon and Northwest Territories Mainland*	1 402	1 755
Arctic Archipelago	1 670	5 314
Manitoba and Saskatchewan	570	688
Alberta	582	1 390
British Columbia	359	1 242
	4 583	10 389

- * Includes Beaufort Sea
- ** Includes Arctic Stable Platform but not Beaufort Sea

Table 8-6

Conventional Oil and Gas Resources of Canada (1983)

	Reserves and Discovered Resources	Potential		
		High Confidence	Average Expectation	Speculative Estimates
Oil 106 m^3 (Recoverable)				
Western Canada Sedimentary Basin	754	234	593	1210
Cordilleran Basins	—	—	50	110
Beaufort Sea — MacKenzie Delta	117	307	1347	2962
Arctic Islands	76	316	686	1305
Eastern Canada Offshore	225	512	1877	3392
Paleozoic Basins — Eastern Canada	0.8	20	167	605
TOTAL	1173	*1486	4720	*8995
Gas 109 m^3 (Recoverable)				
Western Canada Sedimentary Basin	2111	1544	2504	4930
Cordilleran Basins	—	40	270	760
Beaufort Sea — MacKenzie Delta	286	871	1865	4103
Arctic Islands	361	1100	2257	3662
Eastern Canada Offshore	246	725	2423	4713
Paleozoic Basins — Eastern Canada	8.8	46	190	660
TOTAL	3013	*4342	9509	*18285

* These number do not add arithmetically but must be summed using statistical techniques.

Source: EMR (Geological Survey of Canada), *Oil and Natural Gas Resources of Canada*, 1984.

Figure 8-1:
Mineral Exploration and Mining

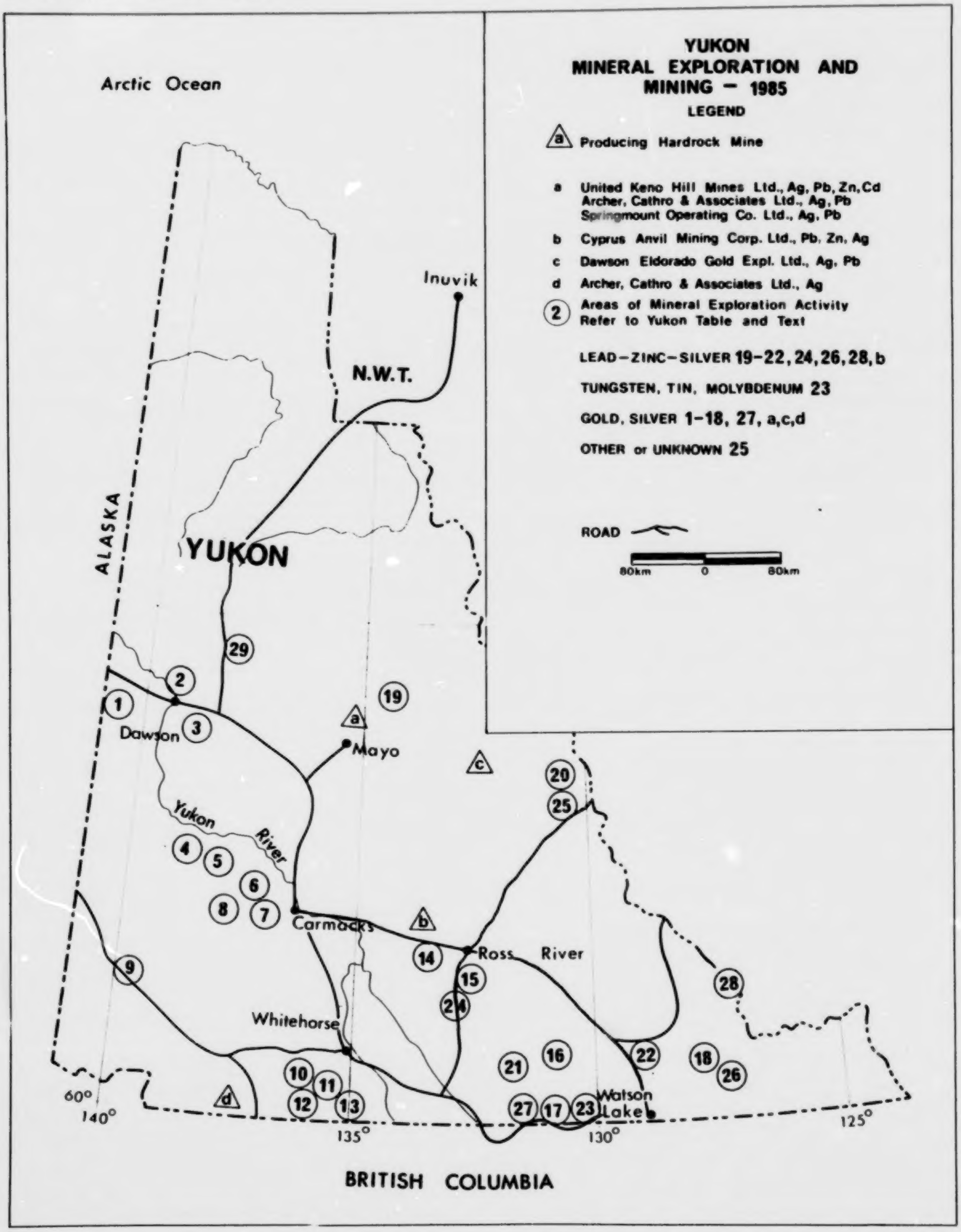

YUKON
MINERAL EXPLORATION AND MINING — 1985
LEGEND
Producing Hardrock Mine
a United Keno Hill Mines Ltd., Ag, Pb, Zn, Cd
Archer, Cathro & Associates Ltd., Ag, Pb
Springmount Operating Co. Ltd., Ag, Pb
b Cyprus Anvil Mining Corp. Ltd., Pb, Zn, Ag
c Dawson Eldorado Gold Expl. Ltd., Ag, Pb
d Archer, Cathro & Associates Ltd., Ag
Areas of Mineral Exploration Activity Refer to Yukon Table and Text
LEAD–ZINC–SILVER 19–22, 24, 26, 28, b
TUNGSTEN, TIN, MOLYBDENUM 23
GOLD, SILVER 1–18, 27, a,c,d
OTHER or UNKNOWN 25
ROAD
80km
0
80km
Arctic Ocean
Inuvik
N.W.T.
ALASKA
YUKON
Dawson
Mayo
Yukon River
Carmacks
Ross River
Whitehorse
Watson Lake
60°
140°
135°
130°
125°
BRITISH COLUMBIA

Figure 8-2:
Mineral Exploration and Mining in the Northwest Territories

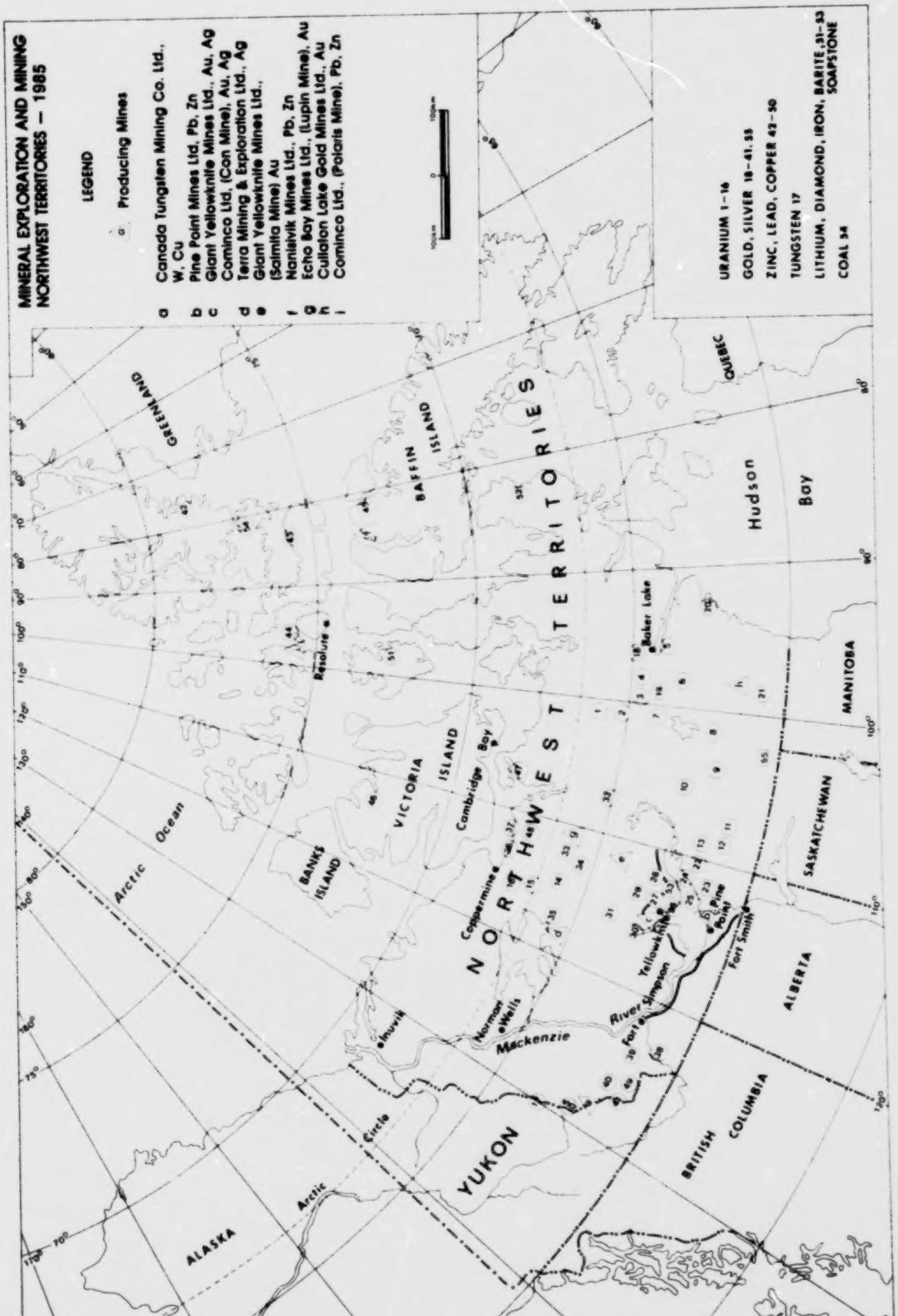

MINERAL EXPLORATION AND MINING
NORTHWEST TERRITORIES — 1985
LEGEND
Producing Mines
a Canada Tungsten Mining Co. Ltd., W, Cu
b Pine Point Mines Ltd. Pb, Zn
c Giant Yellowknife Mines Ltd., Au, Ag
d Cominco Ltd. (Con Mine), Au, Ag
e Terra Mining & Exploration Ltd., Ag
f Giant Yellowknife Mines Ltd., (Salmita Mine) Au
g Nanisivik Mines Ltd., Pb, Zn
h Echo Bay Mines Ltd., (Lupin Mine), Au
i Cullaton Lake Gold Mines Ltd., Au
j Cominco Ltd., (Polaris Mine), Pb, Zn
URANIUM 1–16
GOLD, SILVER 18–41, 55
ZINC, LEAD, COPPER 42–50
TUNGSTEN 17
LITHIUM, DIAMOND, IRON, BARITE, 51–53 SOAPSTONE
COAL 54
GREENLAND
BAFFIN ISLAND
NORTHWEST TERRITORIES
Hudson Bay
QUEBEC
MANITOBA
SASKATCHEWAN
ALBERTA
BRITISH COLUMBIA
YUKON
ALASKA
VICTORIA ISLAND
BANKS ISLAND
Arctic Ocean
Arctic Circle
Resolute
Baker Lake
Cambridge Bay
Coppermine
Yellowknife
Pine Point
Fort Smith
Fort Simpson
Norman Wells
Inuvik
Mackenzie River

Figure 8-3:
Location of Hydrocarbon Potential Geological Provinces

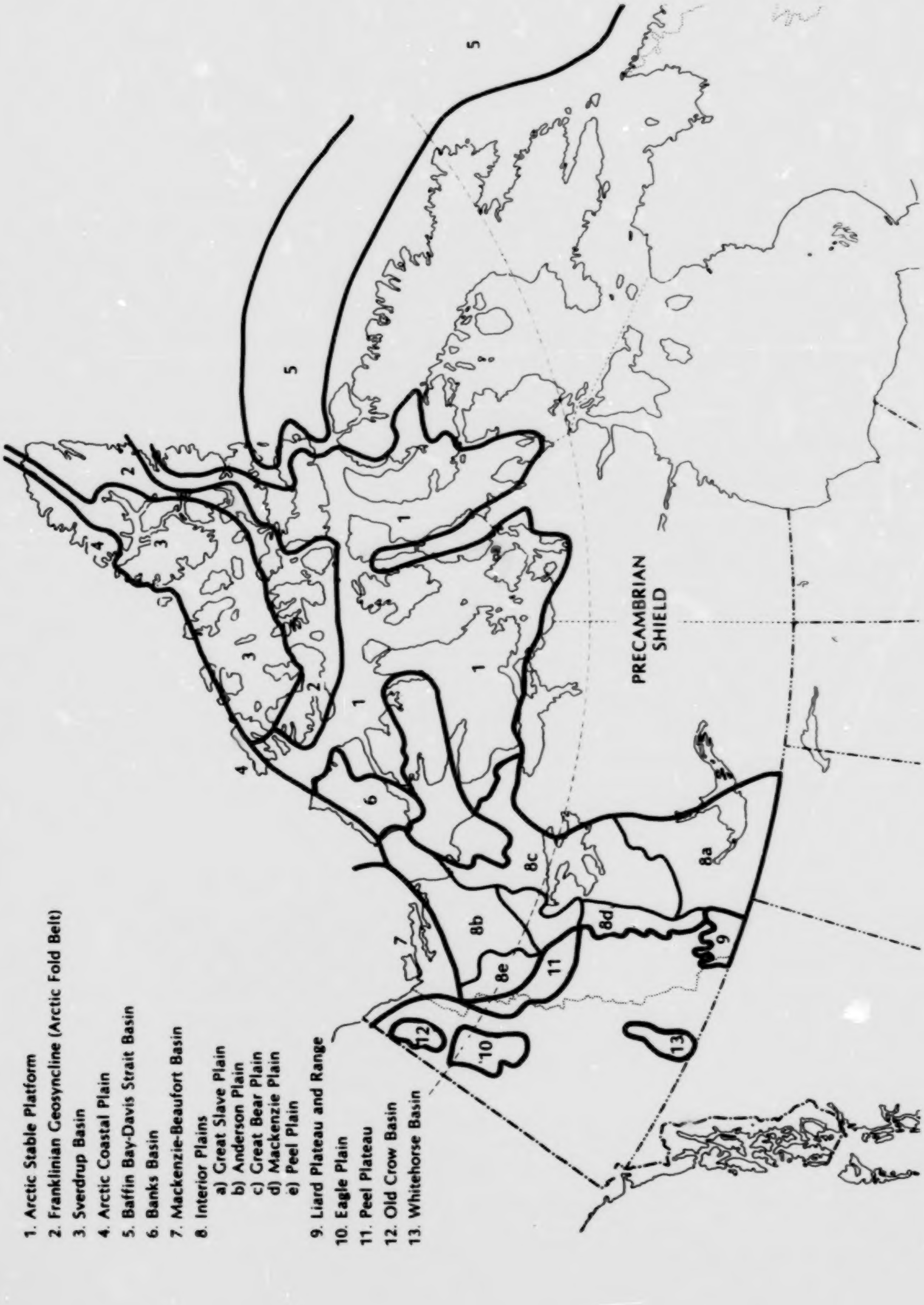
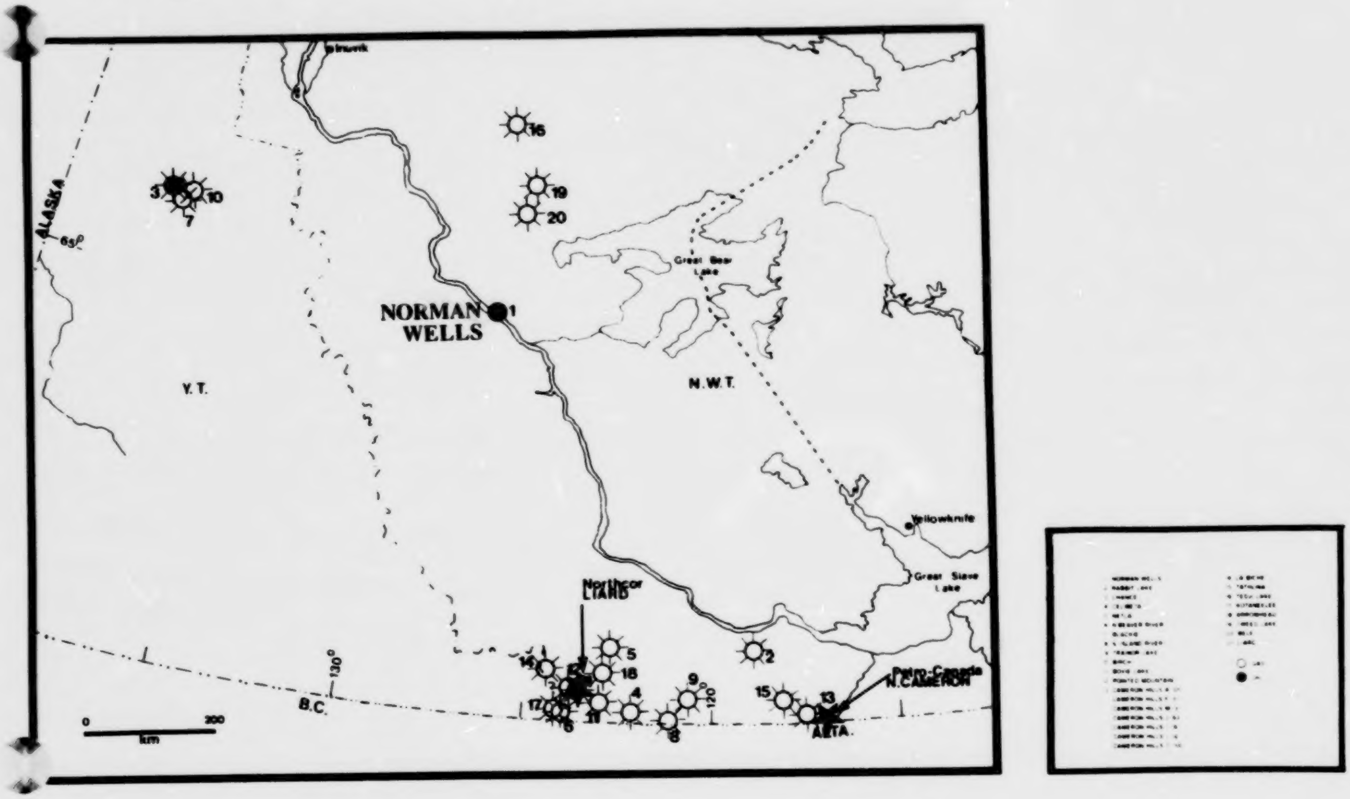

1. Arctic Stable Platform
2. Franklinian Geosyncline (Arctic Fold Belt)
3. Sverdrup Basin
4. Arctic Coastal Plain
5. Baffin Bay-Davis Strait Basin
6. Banks Basin
7. Mackenzie-Beaufort Basin
8. Interior Plains
a) Great Slave Plain
b) Anderson Plain
c) Great Bear Plain
d) Mackenzie Plain
e) Peel Plain
9. Liard Plateau and Range
10. Eagle Plain
11. Peel Plateau
12. Old Crow Basin
13. Whitehorse Basin
PRECAMBRIAN SHIELD
1
2
3
4
5
6
7
8a
8b
8c
8d
8e
9
10
11
12
13

Figure 8-4:
Current Exploration in the Mackenzie-Beaufort Sea — 1987


Inuvik
ALASKA
65°
3
7
10
16
19
20
Great Bear Lake
NORMAN WELLS
1
Y.T.
N.W.T.
Yellowknife
Great Slave Lake
Northcor LIARD
14
5
18
17
6
11
4
9
120
8
2
15
13
Petro-Canada N.CAMERON
ALTA.
130°
B.C.
0
200
km
GAS
OIL

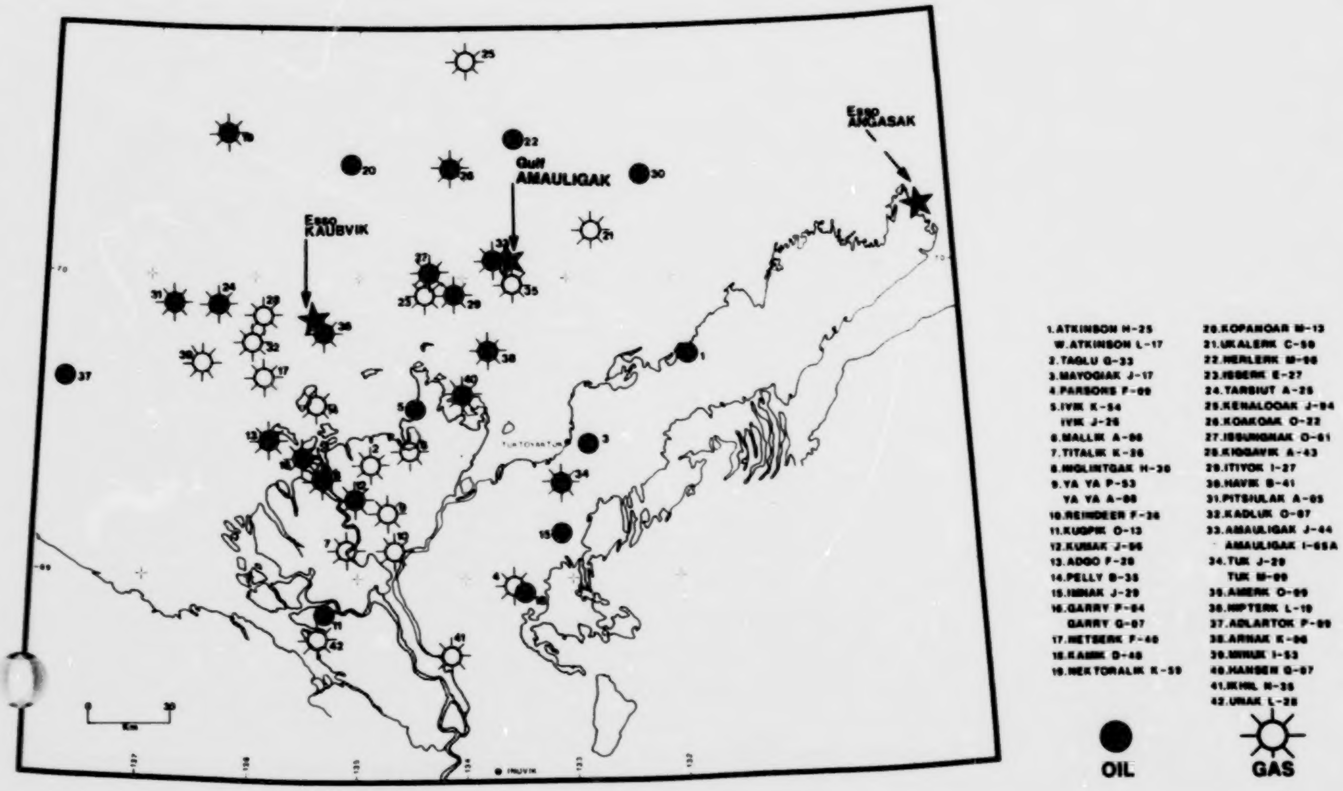
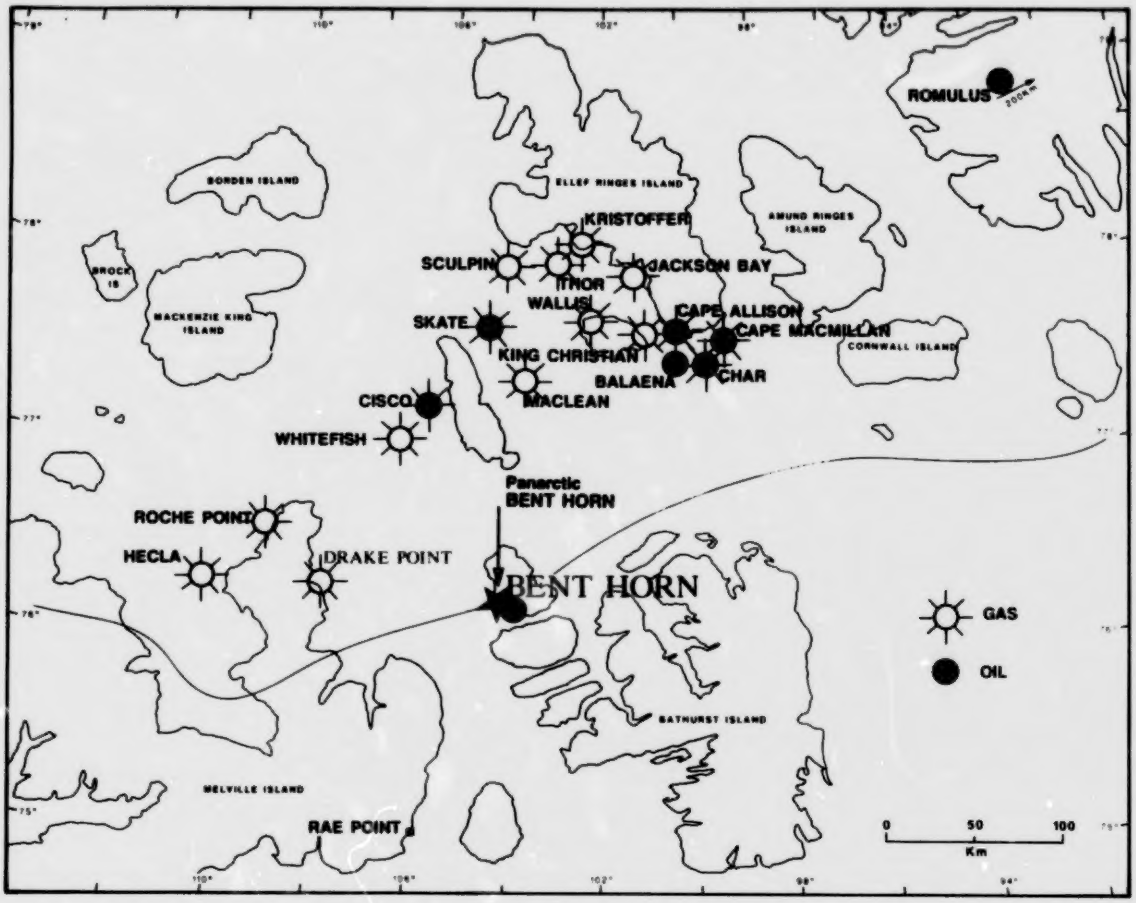

25
19
22
20
28
Gulf AMAULIGAK
30
Esso ANGASAK
Esso KAUBVIK
21
27
33
31
24
23
26
29
35
36
32
39
17
38
37
40
1
10
5
13
18
2
14
3
TUKTOYAKTUK
34
12
9
7
16
15
4
6
11
42
41
0
30
Km
INUVIK
1.ATKINSON H-25
W.ATKINSON L-17
2.TAGLU G-33
3.MAYOGIAK J-17
4.PARSONS F-09
5.IVIK K-54
IVIK J-26
6.MALLIK A-06
7.TITALIK K-26
8.NIGLINTGAK H-30
9.YA YA P-53
YA YA A-28
10.REINDEER F-36
11.KUGPIK O-13
12.KUMAK J-06
13.ADGO F-28
14.PELLY B-35
15.IMNAK J-29
16.GARRY P-04
GARRY G-07
17.NETSERK F-40
18.KAMIK D-48
19.NEKTORALIK K-59
20.KOPANOAR M-13
21.UKALERK C-50
22.NERLERK M-98
23.ISSERK E-27
24.TARSIUT A-25
25.KENALOOAK J-94
26.KOAKOAK O-22
27.ISSUNGNAK O-61
28.KIGGAVIK A-43
29.ITIYOK I-27
30.HAVIK B-41
31.PITSIULAK A-05
32.KADLUK O-07
33.AMAULIGAK J-44
AMAULIGAK I-65A
34.TUK J-29
TUK M-09
35.AMERK O-09
36.NIPTERK L-19
37.ADLARTOK P-09
38.ARNAK K-06
39.MINUK I-53
40.HANSEN G-07
41.IKHIL K-35
42.UNAK L-28
OIL
GAS

Figure 8-5:
Current Exploration in the Arctic Islands


ROMULUS
200Km
BORDEN ISLAND
ELLEF RINGES ISLAND
AMUND RINGES ISLAND
BROCK IS
MACKENZIE KING ISLAND
KRISTOFFER
SCULPIN
THOR
JACKSON BAY
WALLIS
CAPE ALLISON
CAPE MACMILLAN
CORNWALL ISLAND
SKATE
KING CHRISTIAN
BALAENA
CHAR
CISCO
MACLEAN
WHITEFISH
Panarctic BENT HORN
ROCHE POINT
HECLA
DRAKE POINT
BENT HORN
GAS
OIL
BATHURST ISLAND
MELVILLE ISLAND
RAE POINT
0
50
100
Km
78°
77°
76°
75°
110°
106°
102°
98°
94°

9.0 Northern Hydrocarbon Transportation Proposals

9.1 General

The problems of bringing gas and oil from the Arctic to markets in southern Canada and the United States have brought forth a variety of suggested solutions. Pipelines are practicable under northern conditions where the route is overland or requires short marine sections, but they present great, possibly insoluble, problems when large stretches of ocean must be crossed. The most likely alternative to pipelines in marine areas is the use of icebreaking tankers carrying liquefied natural gas (LNG) or oil.

Where an overland route is available the lowest-cost solution is probably a pipeline, although the total cost will still be immense, as the estimates for various proposals outlined below will indicate.

As of the beginning of 1985, three pipelines, the Pointed Mountain gas pipeline and the products line from Skagway to Whitehorse, and the Norman Wells oil pipeline were in place in the North. Others are still at various stages of planning, design, regulatory review or financing processes. These are shown on the accompanying map (Figure 9-1), and descriptions follow for those proposals presently approved or the subject of applications for approval to government.

9.2 Alaska Highway Gas Pipeline (AHGP)

9.2.1 Total Route in Canada

Proposal:	To transport natural gas from Prudhoe Bay, Alaska, to the lower 48 states and allow for further access to Canadian gas in the Mackenzie Delta through an interconnecting Dempster Lateral pipeline. The Alaska Highway pipeline system includes 7696 km (3268 km in Canada, of which 832 km are in Yukon) of 123 cm and 143 cm diameter pipe.
Proponent:	Foothills Pipe Lines (Yukon) Ltd. for Canadian portion.
Sponsors:	Nova (formerly Alberta Gas Trunk Line) and Westcoast Transmission Company Ltd. Subsidiaries: Five companies one for each segment in Canada.
Date Application Filed:	August 1976
Source/Markets:	Prudhoe Bay, Alaska, gas for American markets; provision for Mackenzie Delta gas to Canadian and US markets (pre-build and Dempster Lateral).
System Capacity:	
US gas:	680 million mb/3/day
Canadian gas:	340 million mb/3/day
Total:	1020 billion mb/3/day
Estimated Cost of Canadian Portion:	$8.4 billion US (1980 dollars)
Projected Completion:	Phase 1 of the pipeline, from Alberta to US markets, was completed in September 1982 to export Canadian gas. No schedule has been set for completion of the pipeline due to uncertainties in market conditions, financing considerations and related economic factors.

9.2.2 Yukon Segment

Facilities:	Pipeline
Length/Diameter:	428 km of 123 cm diameter, 404 km of 143 cm diameter
Throughput:	680 million mb/3/day
Compressor Stations:	
Number:	five initially; four additional if Dempster Lateral constructed
Locations:	equally spaced along line
Administration:	
Workcamps:	three for pipeline plus compressor stations
Operating and maintenance offices:	Whitehorse, plus four communities
Manpower Requirements:	
Construction:	peak of approximately 3500 people
Operation:	300-400 (half located in Whitehorse)
Public Review:	Alaska Highway Pipeline Inquiry (Lysyk, Bohmer, Phelps) Panel reported July 1977; Environmental Assessment Review Panel (EARP) (Hill) Panel hearings in 1977; Environmental Impact Statement (EIS) filed in 1979; EARP (Hurtubise) Panel hearings in 1979; Northern Pipeline Agency (NPA) hearings on draft environmental and socio-economic terms and conditions in 1979; EARP (Cotterill) Panel hearings in 1981; EARP (Robinson) Panel hearings in 1982.

9.2.3 Dempster Lateral

Proposal:	To construct a buried gas pipeline from Richards Island along the Dempster and Klondike highways to connect with the Alaska Highway main pipeline near Whitehorse, 1189 km of 87 cm diameter pipe.
Proponent:	Foothills Pipe Lines (Yukon) Ltd.
Sponsors:	Nova (formerly Alberta Gas Trunk Line Company Ltd.) and Westcoast Transmission Company Ltd.
Date Application Filed:	June 29, 1979
Markets:	Initially for US export; then southern Canada.
Estimated Cost:	$1.28 billion (1978 dollars)
Projected Start-up:	
Construction:	on completion of Alaska Highway Gas Pipeline
Manpower Requirements (jobs/year):	
Construction:	220-3260
Operation:	105
System Capacity:	
Initial:	225 million mb/3/day
Operational:	350 million mb/3/day
Ultimate:	425 million mb/3/day
Estimated Reserves:	
Available:	1.5 billion mb/3 (Mackenzie Delta)
Required:	310 billion mb/3

Compressor Stations:	
Number:	Eight
Locations:	121-153 km apart
Public Review:	Referred to Federal Environment Assessment and Review Office (FEARO) January 1978; review panel formed; environmental statement filed June 29, 1979. Socio-economic statement filed August 1979 Planning of public hearings will depend on project scheduling.
Communities affected:	Inuvik, Arctic Red River, Fort McPherson, Dawson City, Stewart Crossing, Pelly Crossing, Carmacks, Whitehorse

9.3 Norman Wells Oilfield Expansion and Pipeline Project

9.3.1 Total Project

Proposal:	Combined oilfield expansion of the existing development at Norman Wells, NWT, from 475 mb/3/day to 4800 mb/3/day of oil, and construction of a 324 mm, 870 km buried pipeline from Norman Wells south along the east side of the Mackenzie River to connect with the Rainbow pipeline at Zama, Alberta.
Proponents:	Esso Resources Canada Ltd. (field); Interprovincial Pipe Line (NW) Ltd. (pipeline).
Application Filed:	
Field expansion:	February 29, 1980
Pipeline:	March 13, 1980
Decision announced:	July 30, 1981
Markets:	southern Canada
System Capacity:	
Initial:	4320 mb/3/day of oil
Operational:	5120 mb/3 day of oil and 800 mb/3/day of natural gas liquids (field)
Potential:	7200mb/3/day of oil (pipeline)
Recoverable Reserves:	
Current:	16 million mb/3 of oil
Projected:	40 million mb/3 of oil
Life of Project:	
Current:	23 years
Projected:	35 years
Number of Wells:	
Current:	55
Projected:	164 more (for a total of 219); 60% are new water-injection wells; 40% are new production wells
Estimated Cost:	
Field development:	$ 612 million
Pipeline:	$ 450 million
Total:	$1,062 million
Projected Mobilization in NWT:	January 1983
Initial Throughput:	March, 1985
Public Review:	Hearings held in northern communities August-September 1980; EARP Panel report released January 22, 1981. NEB hearings (pipeline only) held in Edmonton and Yellowknife, October 1980; the NEB report released April 22, 1981.

9.3.2 Pipeline

Facilities:	
Pipeline:	buried to 0.9 m
Length:	869 km (753 km NWT)
Diameter:	324 mm outside, 310 mm inside
Right of way:	20 m
Throughput:	5120 mb/3/day
Operating Cost:	$14.3 million annually over first five years
Projected Schedules:	
Mobilization:	1983
Pipeline:	1983-84 and 1984-85
Start-up:	1985
Project abandonment:	25 to 40 years later
Construction Spreads:	
Number:	six, carrying 450 workers each at peak construction
Manpower Requirements:	
Construction:	low — 39 in 1982; peak 1350 in March 1983 (peak of that construction season)
Operation:	29 permanent positions

9.3.3 Oilfield Expansion

Facilities:	164 wells (formerly 55); six artificial islands in the Mackenzie River. Gathering (45 km under-riverbed pipe) and processing systems.
Production:	4320 mb/3/day of crude oil by waterflood recovery plus 480 mb/3/day for local refinery
Projected Schedule:	
Drilling program:	1983, 1984 to second quarter 1986
Island construction:	1983 and 1984
Facilities:	late 1982 to late 1985
Pipe laying	
Mackenzie River:	1983-1984
Project start-up:	mid 1985
Project economic life:	24-40 years
Manpower Requirements:	
Construction:	low — 350 in January 1983; peak — 1000 in September 1983
Operation:	200 permanent year-round positions 30 resident/150 rotational positions

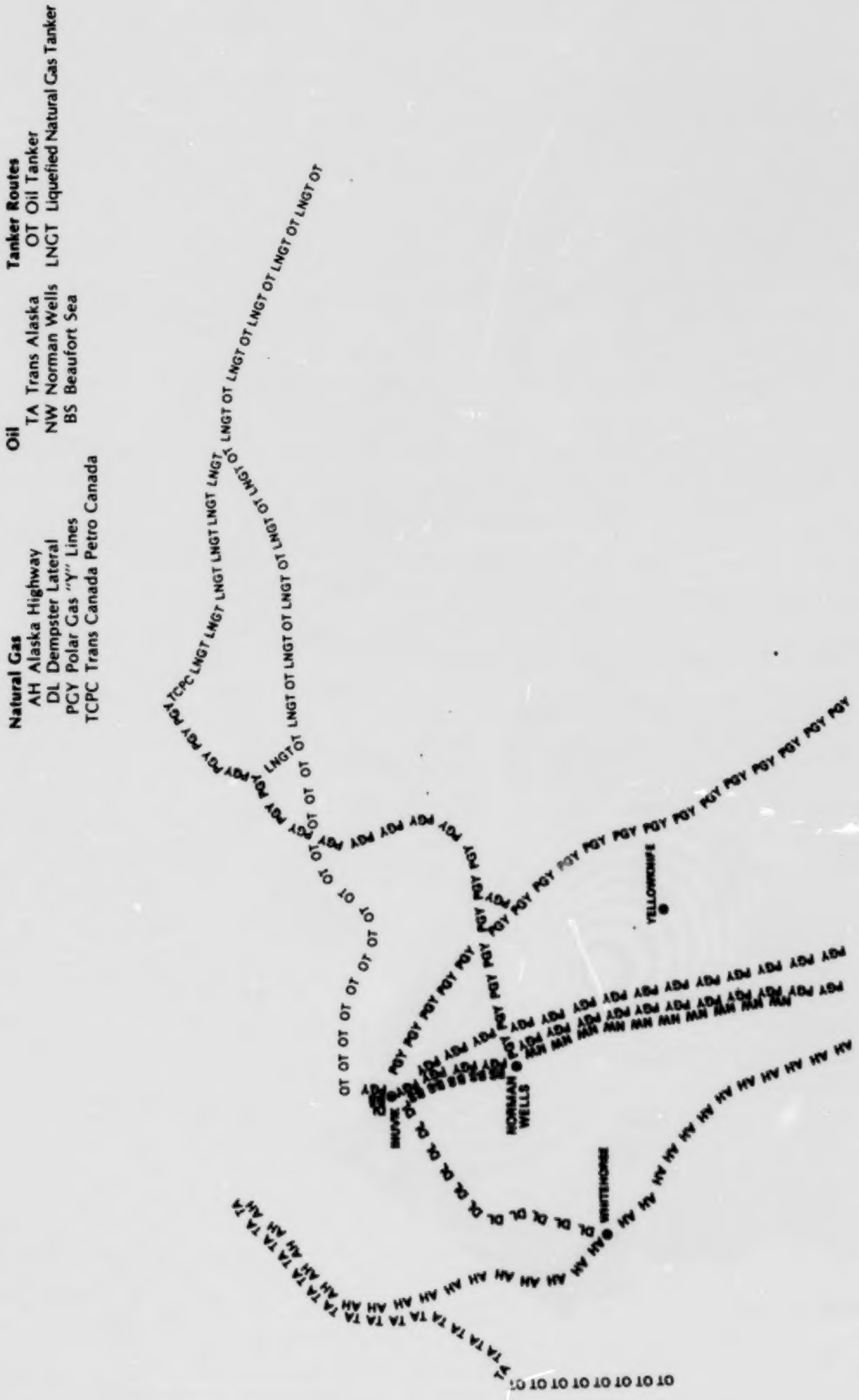
9.4 Polar Gas Pipeline

Proposal:	To construct a pipeline to transport natural gas from the Mackenzie Delta area to southern markets.
Proponent:	Polar Gas
Sponsors:	TransCanada PipeLines (project manager); Panarctic Oils Ltd.; Petro-Canada; Ontario Energy Corporation; Tenneco Oil of Canada Ltd.
Applications:	Filed with NEB and INAC on June 29, 1984.
Markets:	US and/or Canada — to be determined
System Capacity:	
Initial:	23 million mb/3/day
Ultimate:	45.3 million mb/3/day
Estimated Cost:	$3.3 billion (1984 dollars)
Communities Affected:	Inuvik, Tuktoyaktuk, Aklavik, Fort McPherson, Arctic Red River, Fort Good Hope, Fort Norman, Norman Wells, Fort Franklin, Wrigley, Fort Simpson, Jean Marie River, Fort Providence, Hay River, Trout Lake, Yellowknife
Public Review:	Public review processes are under consideration.
Project Completion:	1991

9.5 Bent Horn Production Project

Proposal:	To produce and transport a limited quantity of crude oil from the Bent Horn A-02 well on Cameron Island in the High Arctic by tanker once a year.
Proponent:	Panarctic Oils Ltd.
Approvals:	Development approval — February 5, 1985. 16,800 ml/3 produced in May/June and shipped to Montreal in August 1985.
Estimated Production:	1985 — Phase I, 16,800 mb/3 (three years) 1987 — Phase II, 67,280 mb/3 (seven years)
Anticipated Market:	Petro Canada refinery, Montreal.
Facilities:	114 mm flowline, tank farm, shiploading facilities.
Tankers:	M.V. Arctic: reinforced to Class 2 standards (with ice breaker support) — later to be upgraded to Class 3 or 4.
Estimated Cost:	Phase I — $5.98 million (construction) — $0.5 million (operating costs/yr.) Phase II — $9.4 million (construction) — $1.5 million (operating costs/yr.)
Communities Affected:	Resolute Bay, Arctic Bay, Pond Inlet, Grise Fiord.
Environmental and Socio-Economic Aspects:	Environmental Protection Plan, Marine Contingencies, Environmental Monitoring, and Benefits Plan reviewed by DIAND, GNWT, other federal departments, and northern communities affected.

Figure 9-1:
Oil and Gas Transportation


Natural Gas
AH Alaska Highway
DL Dempster Lateral
PGY Polar Gas "Y" Lines
TCPC Trans Canada Petro Canada
Oil
TA Trans Alaska
NW Norman Wells
BS Beaufort Sea
Tanker Routes
OT Oil Tanker
LNGT Liquefied Natural Gas Tanker
TCPC
LNGT
OT
PGY
AH
DL
TA
NW
YELLOWKNIFE
NORMAN WELLS
WHITEHORSE
INUVIK

10.0 Transportation

10.1 General

Throughout Northwest Territories and Yukon, much of the transportation is by air. However, in Yukon and the Mackenzie District of NWT there is an important and growing network of roads, water routes which carry a substantial tonnage of freight and railways which reach as far as Whitehorse, Yukon, and Pine Point, NWT.

Until the 1940s there were few northern roads except for short trails in settlements and a wagon track from Whitehorse to Dawson. This and a single rail line constituted the land links with "outside". The construction of the Alaska Highway, spurred by the defence needs of North America during World War II, provided a means of reaching the mineral wealth of northern BC and Yukon, but even ten years after the war's end there was no established roads policy.

The end of the 1940s saw the first road connection to the NWT with the start of the Mackenzie Highway. Running 752 km north from Grand Prairie, Alberta, it carried freight to Hay River on Great Slave Lake, the southern end of the Mackenzie River transportation system.

During the 1950s a definite roads policy began to emerge with the approval of an annual expenditure of $10 million for new road construction in Yukon and NWT. Actual expenditures during the first eight years of the program averaged about $6 million, but by 1980-81 the planned expenditure by Indian and Northern Affairs Canada (INAC), Public Works Canada (DPW) and the territorial departments of highways for roads, bridges and public utility services had risen to $33 million. In addition to this, Transport Canada planned for roughly equal amounts to be spent on both air and marine transportation.

The new Dempster Highway traverses 726 km north from the Klondike Highway near Dawson City, Yukon to Inuvik, NWT. The completion of this highway in 1978 provided an all-weather road link between southern Canada and the Mackenzie Delta.

10.2 Air Transportation

10.2.1 General

Because of the vast distances which must be covered, transportation by air is the choice for most travellers in Canada's North even if alternatives are available. The shortness of the ice-free season even in those parts of the Arctic Ocean where open water is experienced, makes air transportation essential. To meet this need, commercial air carriers offer scheduled service to most communities and charter service virtually anywhere.

Figure 10-1 shows the routes covered by scheduled flights. Many other operators also operate to a regular schedule, although they are not required to do so under the terms of their licences. Figure 10-2 shows the points to which these unscheduled flights are made on a unit toll basis.

For a complete list of carriers, the points served, class of licence held and the aircraft operated (classified by weight group) see The Directory of Canadian Commercial Air Service. Copies of this directory are available from:

Canadian Government Publishing Centre
Supply and Services Canada
Hull, Quebec, Canada
KIA 0S9

10.2.2 Equipment

The equipment used by the carriers listed in Table 10-1 varies in accordance with the availability of aircraft and seasonal demand. Types listed here should be considered as a general guide.

10.2.3 Fares and Charter Rates

Air carriers charge on a toll per unit of traffic (i.e. price per seat) for passenger service.

In contrast to unit toll, in which charges are per seat or per kilogram, charter rates are for the entire aircraft. They are determined by the competitive market and, generally speaking, reflect local costs. A licensee may file different rates for the same aircraft type for different locations or he may elect to offer a uniform rate wherever he provides service. The rates quoted in Table 10-4 are those filed by one of the larger air carriers operating in the North and should be considered as typical only.

10.3 Roads and Road Transportation

10.3.1 General

Northern roads are characterized by long distances and low traffic volumes. Most all-weather roads are gravel surfaced and are left untreated at traffic levels of less than 250 vehicles per day. Above this level calcium chloride or other dust control treatment is required. When the mean daily traffic count, May to October inclusive, reaches 500 vehicles, paving is considered to be justified. Portions of the Alaska Highway, the Klondike Highway, the Carcross Skagway Road, the Hay River Highway and the Fort Smith Highway now have a bituminous surface treatment or are paved, and more than 1250 km of Yukon highways now have paved or bituminous surface.

Because there are frequently long distances between one community and another, weather forecasts and descriptions of road conditions are given regularly on the radio. Drivers are warned to be prepared for all kinds of conditions and to carry survival equipment on long journeys.

Six ferry crossings are considered to be an integral part of the road system. They are: near Fort McPherson and at Arctic Red River on the Dempster Highway; on the Canol Road at Ross River; on the Yellowknife Highway at Fort Providence; on the Mackenzie Highway at the Liard River; and on the Klondike Highway near Dawson City.

Ferries usually operate from mid-May to early November in the south while at the more northerly crossings the season is from June to mid-October. Ice bridges can be started about the middle of December and kept in operation for two to three months.

In addition to the major road network, winter roads provide surface transportation to some communities.

10.3.2 Yukon's Highways

The principal road entrance to Yukon is the Alaska Highway. Built during World War II, it is now an all-weather road which enters Yukon near Watson Lake and passes through Teslin to Whitehorse. From Whitehorse it runs roughly west to Haines Junction and then northwest, skirting Kluane National Park, to the Alaska border at Beaver Creek. Most of the highway is either paved or has bituminous surface treatment applied, but some stretches are gravel surfaced.

Another road from the south joins the Alaska Highway close to Watson Lake. It is the continuation of BC Highway 37 which runs north from its junction with the Yellowhead Highway between Smithers and Prince Rupert, BC.

The Robert Campbell Highway runs northwest from Watson Lake to a spot near Ross River where it meets the Canol Road and then to its junction with the Whitehorse-Keno Road at Carmacks. It also connects with the Nahanni Range Road, Highway 10, to Tungsten.

Three other roads cross the southern border of Yukon. Highway 7 runs south from Jake's Corner, just east of Carcross, to Atlin, BC; the Haines Road runs from Haines Junction south to Haines, Alaska; and the Klondike Highway connects Skagway with Carcross.

The Klondike Highway runs generally north from the Canada-US border just north of Skagway, through Carcross to join the Alaska Highway just south of Whitehorse. At the north of Whitehorse, the Klondike Highway leaves the Alaska Highway to run north to Dawson. Highway 11 joins at Stewart Crossing to provide access to Mayo, Elsa and Keno.

Approximately 32 km south of Dawson, the Dempster Highway runs northeast, crosses into NWT, reaches Fort McPherson and Arctic Red River and joins the Mackenzie Highway south of Inuvik; it is Canada's first road to cross the Arctic Circle. Construction work is still going on.

Boundary Road, or the Top-of-the-World Highway, runs west from Dawson and meets the Alaska Highway at Tetlin Junction, Alaska.

10.3.3 Highways in NWT

The Mackenzie Highway from Peace River, where it meets the network of northern Alberta's roads, is the principal highway route into Northwest Territories. From its crossing of the border it runs to Enterprise, just south of Hay River, and then swings northwest to follow the Mackenzie River through Fort Simpson, stopping just short of Wrigley. Extension to Wrigley is planned to start in 1984-85. The next stage will then be to Norman Wells.

About 80 km northwest of Enterprise the Mackenzie Highway interests with Highway 3 (the Yellowknife Highway). A ferry at Fort Providence provides access to Rae and Yellowknife. East of Yellowknife is Highway 4 designated as the Ingraham Trail.

The Liard Highway provides an all-weather connection between Fort Nelson, BC, and the Mackenzie Highway a little south of Fort Simpson.

The Dempster Highway originates in Yukon east of Dawson City and extends to the Mackenzie Highway just south of Inuvik, NWT. The possibility of linking Inuvik by road to the Arctic Ocean at Tuktoyaktuk is being studied.

Highway 5 runs east and south from Hay River to Fort Smith on the Alberta-NWT border. A road provides access from Fort Smith to Wood Buffalo National Park. Highway 6 leaves Highway 5 east of Hay River on its way to Pine Point and Fort Resolution.

In addition to the all-weather roads, winter roads provide surface transportation over some routes during much of the year. Some of these have provided vital transportation facilities to meet specific needs as, for example, the links between Inuvik and Tuktoyaktuk and from Fort Norman to Fort Franklin. Where the expected freight warrants the labour and expense of construction, most lakes and rivers can be used. Some parts of the Mackenzie and Great Bear rivers form a temporary addition to the highway network during most years.

The all-weather roads and some of the routes over which winter roads are commonly established are shown in Figure 10-3.

10.3.4 Highway Freight Carriers

Trucking firms carry freight into Yukon and the NWT principally via the Alaska and Mackenzie highways.

In Yukon four major companies are responsible for most of the traffic: Arrow Transportation Systems; Canadian Freightways Ltd.; White Pass Transportation Co.; and Yukon Freight Lines Ltd.

Rates are dependent on the size of the shipment and the class of goods but for general cargo those shown in Table 10-5 are typical.

There are four principal highway carriers operating into NWT, together with a number of smaller firms. The four main ones are: Grimshaw Trucking and Distributing Ltd., Edmonton; Byers Transport Ltd., Edmonton; Northwest Transport Ltd., Yellowknife; and Points North, Inuvik. These companies carry general freight over the all-weather roads and provide transportation services during winter months on ice roads as well.

Freight charges are similar to those tabulated in Table 10-5 for Yukon for equivalent loads and haul distances.

10.3.5 Buses

There is bus service into both Yukon and NWT. In Yukon, Greyhound Coach travels the Alaska Highway from Edmonton north to Alaska through Whitehorse, Haines Junction, Destruction Bay and Beaver Creek.

Norline Coach runs three times a week (Monday, Wednesday and Friday) from Whitehorse north to Dawson, with a connecting run to Tok, Alaska, on the following days. There is a connection there with Greyhound either on to Alaska or back to Whitehorse. Norline also provides service to Carmacks.

In addition, Mar Air Bus of Haines, Alaska, has scheduled service to Whitehorse with a connection to Fairbanks.

In NWT, Greyhound has daily service from Edmonton to Hay River. At Hay River, NWT Coach provides a connection three times a week, Monday, Wednesday and Friday, for Yellowknife, with return service the following day. NWT Coach also goes daily to Pine Point and to Fort Smith.

10.4 Water Transportation

10.4.1 General

Water transportation was the principal means of movement through the North from the earliest exploration until the 1920s and 1930s, when air travel became possible.

Just before the turn of the century, the Yukon River carried miners and their supplies from Whitehorse to the gold fields near Dawson City and steamers continued to operate on the river until fairly recent times. There is now no commercial water transportation on this river.

In NWT the backbone of water transportation was and is the Mackenzie River. From Alexander Mackenzie's journey of 1789 until about 1826 the canoe was supreme, giving way at that time to the larger shallow-draft York boats. These in turn were replaced by steamers in the late 1800s. Around 1930, tugs and barges replaced the steamboats and they now carry hundreds of tonnes of freight each year (e.g., Northern Transportation Company Ltd. carried 348,000 tonnes in 1981).

10.4.2 The Mackenzie Watershed Routes

Within the Mackenzie watershed there are five sectors: the Mackenzie River from Hay River to Tuktoyaktuk, including the Peel River; the Canadian western Arctic; the Athabasca River and Lake Athabasca system; Great Slave Lake; and the Liard River and Fort Nelson River system.

The main barrier to navigation on the system is a 49 km section of the Slave River at Fort Smith where portaging is necessary. In addition, tows have to be broken and handled one barge at a time at the Sans Sault Rapids on the Mackenzie River, about 1046 km from Hay River. The length of the shipping season varies from south to north; average periods are shown in Table 10-7.

In 1981, there were four shipping companies which operated over all or a part of the Mackenzie system: Cooper Barging Services; Norsask Marine Ltd.; Northern Transportation Company Ltd.; and Arctic Transportation Company.

Of these, Northern Transportation Company Ltd. (NTCL) is by far the largest, carrying about four times as much as all of the others combined. Service in Great Bear Lake and Great Bear River is non-existent, NTCL having closed out its operation there in 1980.

As tug and barge sizes have increased, problems have arisen from time to time due to low water levels in the Mackenzie River. This necessitates relaying barges through rapids and coping with the damage to tugs and barges resulting from frequent grounding. In the 1980 operating season the problem became so acute that some tugs and several barges had to be left at Inuvik over the winter, being unable to negotiate a sharp ledge (Ramparts) near Fort Good Hope, which would normally be covered with water.

NTCL reported a change in the nature of the freight carried, which is no doubt mirrored in the experience of its smaller competitors. Community re-supply tonnages have decreased somewhat, while cargoes of material for the oil and gas exploration work in the Mackenzie Delta-Beaufort Sea region have increased sharply. The company also reports a decrease in freight in the Athabasca sector, due initially (1980) to competition from other modes of transport. With the closing of the mine at Eldorado in 1982, the freight to this area decreased still further.

10.4.3 Central, Eastern and High Arctic Shipping

Much of the freight carried on the Mackenzie system is transferred to ocean vessels at Tuktoyaktuk for distribution to the Beaufort Sea area and to coastal points and islands as far east as Spence Bay. NTCL carries almost all of the freight into the area.

The eastern Arctic generally is served by the Eastern Arctic Sealift, coordinated by the Canadian Coast Guard. Cargo originates from many Canadian and foreign points and is assembled principally at Montreal. Consignees include federal and territorial government departments, Crown agencies, the United States Air Force, private companies and individuals. Tonnage carried varies from year to year in volume and make-up but bulk fuel has predominated, at least in recent years.

NTCL service to the Keewatin consists of shipments moved by rail north to Churchill, Manitoba, marshalled in Churchill and shipped by tug and barge to communities along the west coast of Hudson Bay.

The Coast Guard provides ice routing and escort services to the ships carrying this cargo. Other areas served include Frobisher Bay, Strathcona Sound, Resolute Bay, Rae Point, Little Cornwallis Island, Eureka and sites in Foxe Basin and other points as far north as Grise Fiord.

Shipments to the High Arctic are a further responsibility of the Canadian Coast Guard as either carrier or escort. Tonnage carried and cargo make-up vary with changing activity in the region.

Future developments

As the prices for petroleum fuels have risen over the past decade or so, plans for exploration of the reserves of gas and oil in the Canadian Arctic have developed. The Arctic Pilot Project is one of these and it plans the use of tankers designed to carry liquefied natural gas. Proposed designs utilize specially reinforced hulls and engines powerful enough to permit passage through ice cover up to three metres.

10.5 Rail Transportation

10.5.1 General

Railways serve only two points in Canada's North at the present time. A line from Grimshaw, Alberta, runs through Hay River to Pine Point, NWT.

10.5.2 The White Pass and Yukon Railway

A long-established narrow-gauge railroad connects Whitehorse to tidewater at Skagway, Alaska. The White Pass and Yukon Railway was built in 1898-1900 to serve the transportation needs of the prospectors and miners of the Klondike. Its route is from Skagway, Alaska, through the White Pass into British Columbia and thence north to Whitehorse, Yukon.

This once vital link has suffered economically in recent times. Following a study in 1978, some organizational changes were made and some financial assistance provided by the federal government. The rail no longer provides carriage to passengers nor to general freight inbound; in the past, ore from Yukon's mines accounted for most of the outbound movement.

10.5.3 The Great Slave Lake Railway

The Great Slave Lake Railway was constructed by Canadian National Railways in 1965. The purpose was to develop the section of Canada from northern Alberta to the area of NWT south of Great Slave Lake and in particular to permit the exploitation of the zinc deposits there. The route selected runs from Grimshaw, Alberta, north to Hay River, NWT, and thence east to the mine site at Pine Point.

Although this line was designed for the movement of lead-zinc ore concentrates from Pine Point Mines, there have been considerable grain and lumber shipments as well. The dramatic increase in petroleum exploration in the Arctic has generated northbound traffic on the line to Hay River, the staging area for the Mackenzie River barge system.

Table 10-1

Aircraft types used in scheduled service to various northern points

Carrier	Aircraft Type	No. of Seats
Austin Airways	HS 748	45
Calm Air	HS 748	45
First Air	HS 748	45
Northwest Territorial	DC 3	23
Airways	Lockheed Electra	65
Pacific Western Airlines	Boeing 737	115
Trans North	DC 3	23
Air	Twin Otter	17

Table 10-2

Some typical one-way fares, regular economy class, as of July, 1984

Route	Fare
Edmonton-Whitehorse	$ 236.00
Whitehorse-Dawson	176.00
Whitehorse-Inuvik	282.00
Montreal-Frobisher Bay	397.00
Frobisher Bay-Resolute	336.00
Frobisher Bay-Hall Beach	206.00
Winnipeg-Yellowknife	309.00
Yellowknife-Holman Island	398.00
Yellowknife-Cambridge Bay	161.00

Table 10-3

Some typical general cargo rates as of August, 1984

Route	Carrier	Rate $/kg	Mimimum
Montreal-Frobisher Bay	Nordair	2.45	$28.00
Frobisher Bay-Resolute	Nordair	2.40	$28.00
Frobisher Bay-Hall Beach	Nordair	1.75	$28.00
Edmonton-Whitehorse	PWA	1.36	$21.00
Whitehorse-Dawson City	TNA	1.80	$16.50
Whitehorse-Inuvik	TNA	2.50	$16.50
Winnipeg-Yellowknife	NWT	1.84	$23.00
Yellowknife-Holman Island	NWT	2.93	$23.00
Yellowknife-Cambridge Bay	NWT	2.93	$23.00

Charter

Table 10-4

Typical charter rates for aircraft in the NWT

Aircraft Type	Rate $/mile	Rate $/hour
Fixed wing:		
Cessna 185	1.75	245.00
402	1.72	344.00
Twin Otter (DHC-6) 300 series	6.10	850.00
Lockheed L-188	8.50	2550.00
Helicopter:		
Bell 47 G3BI	—	260-285.00 *
Hughes 500C	—	430-460.00 *
Alouette 2	—	515-536.00 *

* Figures quoted are for south of the 70° N (lower) and north of 70° N (higher).

Table 10-5

Typical rates for general cargo via highway transport

Cost per kilogram		
Weight of Shipment	Edmonton to Whitehorse	Vancouver to Whitehorse
454 kg (1000 lb)	$ 20.35	$ 20.88
2272 kg (5000 lb)	16.63	16.95
4545 kg (10,000 lb)	14.34	15.48
9090 kg (20,000 lb)	12.20	13.28
13,636 kg (30,000 lb)	—	12.07
18,182 kg (40,000 lb)	10.82	10.76

Table 10-6

Some typical one-way bus fares over routes shown as of June 1984

From	To	Fare
Edmonton, Alberta	Watson Lake, Yukon	125.80
	Swift River, Yukon	117.95
	Teslin, Yukon	109.95
	Johnson Crossing, Yukon	106.90
	Whitehorse, Yukon	99.00
	Haines Junction, Yukon	115.50
	Beaver Creek, Yukon	144.00
Edmonton, Alberta	Enterprise, NWT	62.20*
	Hay River, NWT	64.35*
	Fort Providence, NWT	72.40*
	Yellowknife, NWT	96.85*
Hay River, NWT	Pine Point, NWT	12.00*
Whitehorse, Yukon	Fairbanks, Alaska	93.00*

Fares via Norline Coach, Edmonton

* Quoted by Voyageur Colonial, carriage by others

Table 10-7

Average shipping periods on Mackenzie River water routes

From	To	Period	Days
Waterways, Alberta	Athabasca River	May 5-Oct.20	168
	Peace and Slave Rivers	May 18-Oct.20	155
	Lake Athabasca	June 1-Oct.20	142
Hay River, NWT	Great Slave Lake and Upper Mackenzie River	June 15-Oct.20	127
	Lower Mackenzie River	June 20-Oct.5	107
	Tuktoyaktuk	July 5-Sept.25	82
	Arctic Coastline	July 15-Sept.25	72

Note: Depending on type of vessel, the minimum average sailing time between Hay River and Tuktoyaktuk (1,806 km) is:

	Continuous Sailing	With Stops and Relays
Northbound	4-1/2 to 5-1/2 days	9 days
Southbound	7-1/2 to 9-1/2 days	12 days

Table 10-8

Tonnage carried by Eastern Sealift, 1979-84

Year	Dry cargo (tonnes)	Bulk Fuel (tonnes)
1979	9,682	34,500
1980	10,033	33,400
1981	11,862	27,094
1982	10,393	28,881
1983	10,018	27,363
1984	12,594	36,126

Figure 10-1:
Scheduled Domestic Air Services — Class I and II
Yukon and Northwest Territories

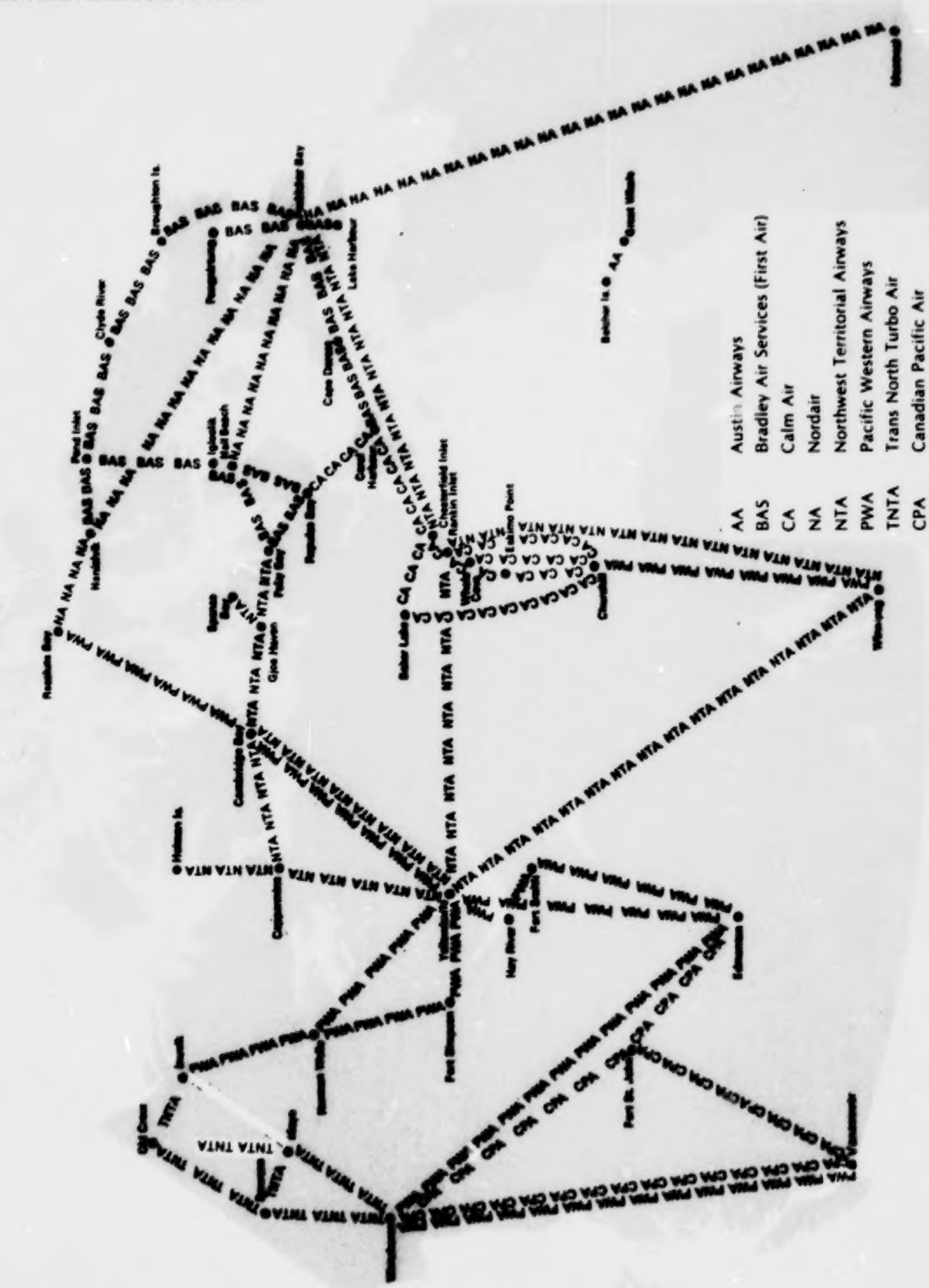

AA Austin Airways
BAS Bradley Air Services (First Air)
CA Calm Air
NA Nordair
NTA Northwest Territorial Airways
PWA Pacific Western Airways
TNTA Trans North Turbo Air
CPA Canadian Pacific Air
Clyde River
Pond Inlet
Broughton Is.
Lake Harbour
Cape Dorset
Chesterfield Inlet
Rankin Inlet
Eskimo Point
Baker Lake
Gjoa Haven
Cambridge Bay
Holman Is.
Hay River
Fort Smith
Belcher Is.
Great Whale

Figure 10-2:
Points Served by Class III (unscheduled) Air Carriers
Yukon and Northwest Territories

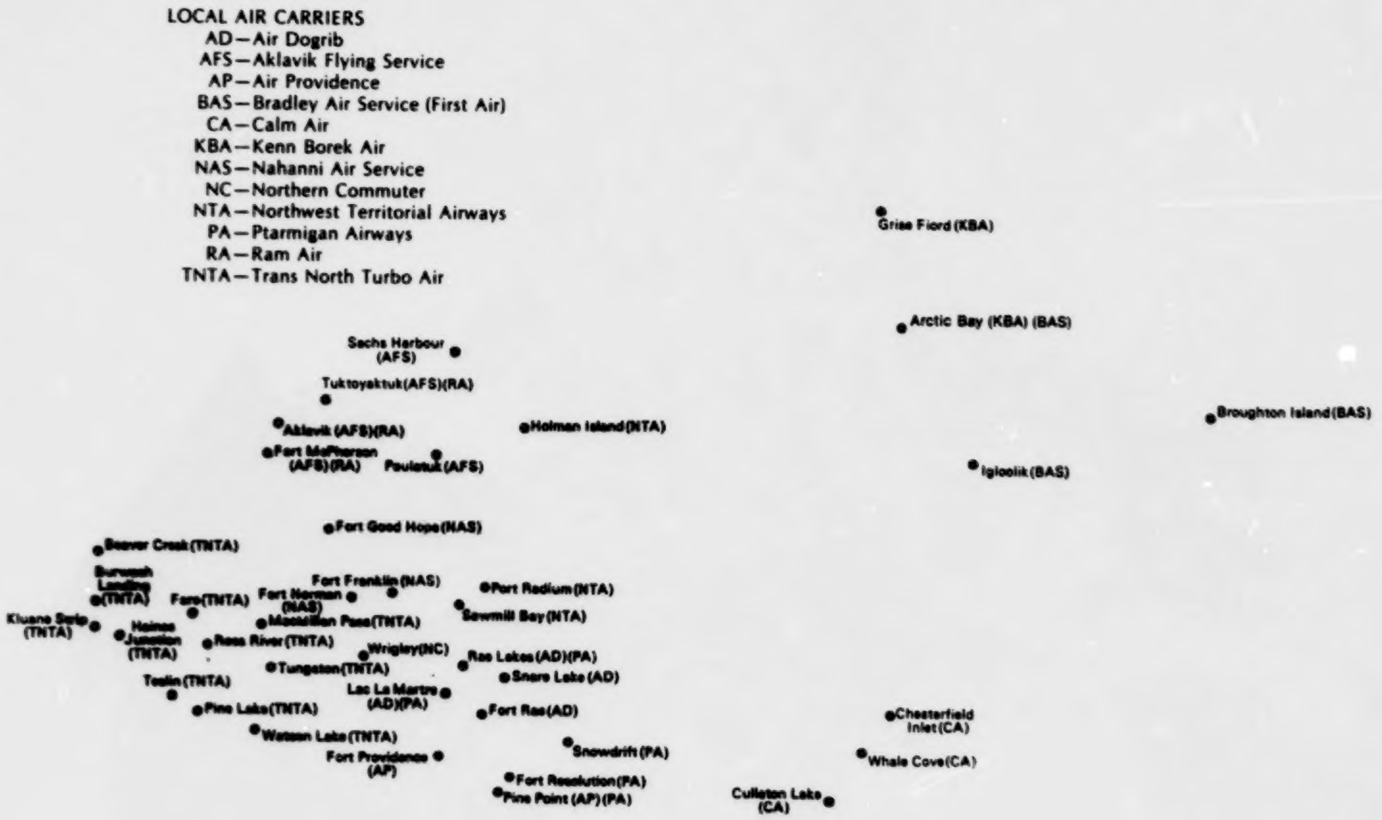
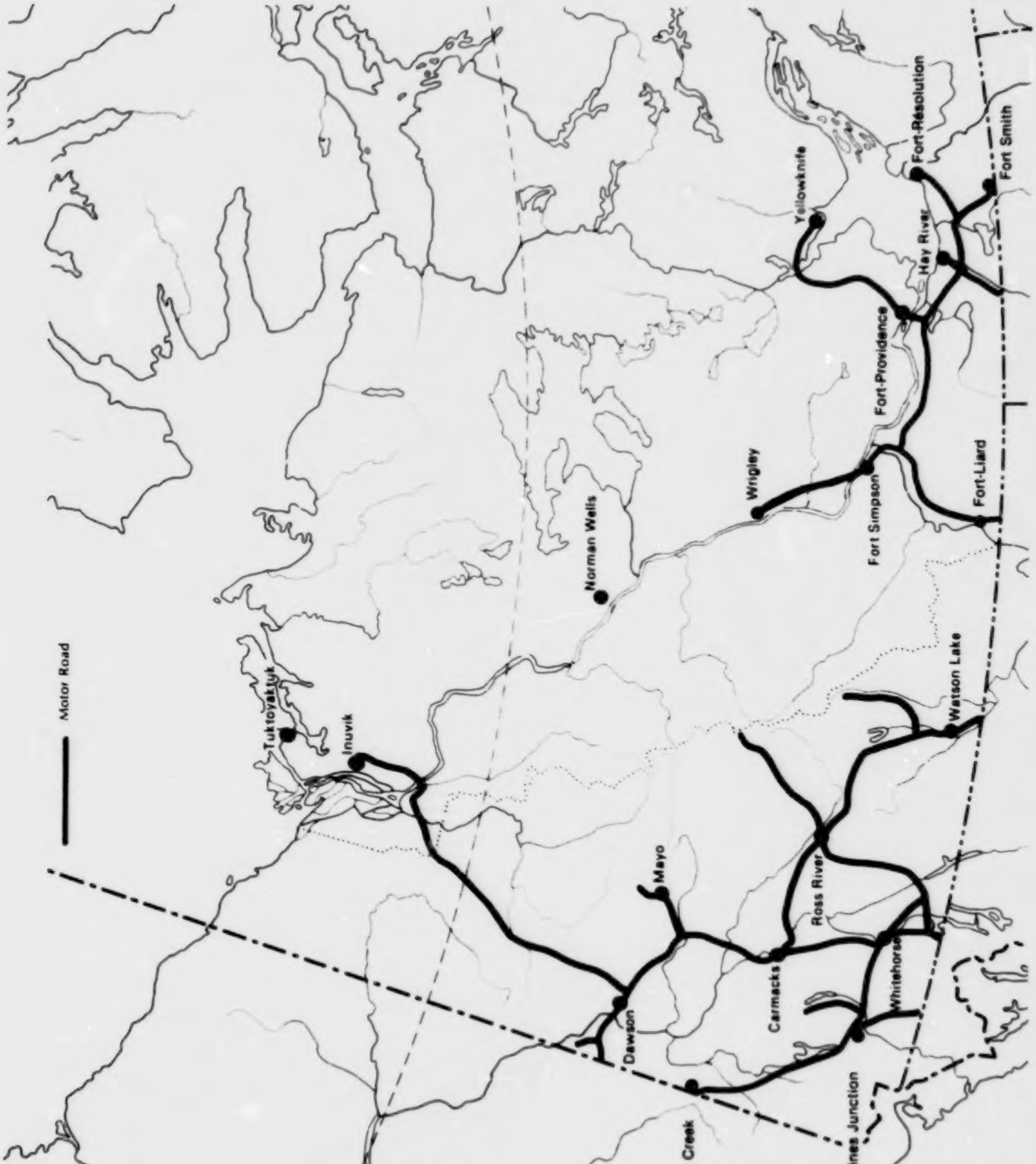

LOCAL AIR CARRIERS
AD—Air Dogrib
AFS—Aklavik Flying Service
AP—Air Providence
BAS—Bradley Air Service (First Air)
CA—Calm Air
KBA—Kenn Borek Air
NAS—Nahanni Air Service
NC—Northern Commuter
NTA—Northwest Territorial Airways
PA—Ptarmigan Airways
RA—Ram Air
TNTA—Trans North Turbo Air
Grise Fiord (KBA)
Arctic Bay (KBA) (BAS)
Broughton Island (BAS)
Igloolik (BAS)
Sachs Harbour (AFS)
Tuktoyaktuk (AFS)(RA)
Aklavik (AFS)(RA)
Holman Island (NTA)
Fort McPherson (AFS)(RA)
Paulatuk (AFS)
Fort Good Hope (NAS)
Beaver Creek (TNTA)
Burwash Landing (TNTA)
Faro (TNTA)
Fort Norman (NAS)
Fort Franklin (NAS)
Port Radium (NTA)
Sawmill Bay (NTA)
Kluane Strip (TNTA)
Haines Junction (TNTA)
Macmillan Pass (TNTA)
Ross River (TNTA)
Wrigley (NC)
Rae Lakes (AD)(PA)
Tungsten (TNTA)
Snare Lake (AD)
Teslin (TNTA)
Lac La Martre (AD)(PA)
Pine Lake (TNTA)
Fort Rae (AD)
Watson Lake (TNTA)
Fort Providence (AP)
Snowdrift (PA)
Fort Resolution (PA)
Pine Point (AP)(PA)
Chesterfield Inlet (CA)
Whale Cove (CA)
Culleton Lake (CA)

Figure 10-3:
Road Network: Yukon and Northwest Territories


Motor Road
Tuktoyaktuk
Inuvik
Norman Wells
Wrigley
Yellowknife
Fort-Resolution
Fort Smith
Hay River
Fort-Providence
Fort Simpson
Fort-Liard
Watson Lake
Mayo
Ross River
Dawson
Carmacks
Whitehorse
Beaver Creek
Haines Junction

11.0 Communications

11.1 Telephone Service

Telephone service is provided in the North by two carriers. Bell Canada serves most of the area east of 102a/°W longitude. West of this line and in most of the Arctic Islands NorthwesTel, one of the CN group of companies, is primarily responsible. NorthwesTel was incorporated on January 1, 1979, when it began operations in its own name, with headquarters in Whitehorse, Yukon.

Telephone companies in the North, as in the rest of Canada, are regulated by the Canadian Radio-television and Telecommunications Commission (CRTC) regarding their rates.

In the eastern sector there are 22 communities including Little Cornwallis Island. Bell provides communication via satellite to all of these. They have full direct dialing. The Bell Canada directory which covers the NWT area is trilingual, English, French and Inuktitut.

Mobile service is available in some areas, served by bases at Frobisher Bay, NWT and Alma, Quebec. There is a range of telecommunications services available including data transmission and telex.

In the western Arctic where service is provided by NorthwesTel the situation is similar, although some locations have only mobile radio-telephone, and a few have access to radio-telephone just outside the community. This situation reverses the condition existing prior to the provision of satellite service, when the western Arctic was served better than the east.

Through the Mackenzie Delta where traffic is high NorthwesTel has two microwave channels, each of which offers 300 circuits, and the system is capable of providing three alternate routes out of the Delta.

The company serves a total of 60 communities, most of which are in Yukon or NWT, with a few in northern BC. There are now more than 45,000 telephones connected to 64 exchanges dispersed throughout Yukon, western NWT and northern B.C.

Ninety-nine per cent of the telephones have direct distance dialing capability, providing virtually instant access to the world's switched telephone network.

There are over 100 radio-telephone base stations, located to provide optimum coverage of the Alaska Highway and the Mackenzie River transportation corridors.

As well as voice transmission facilities, the network offers telex, telegram, data transmission, radio and computer communications. In addition, program quality lines are provided for the CBC.

The communities of NWT and the telephone facilities available to each are listed in Table 11-1. In Yukon most communities have telephone service provided by NorthwesTel.

11.2 Radio

Radio in Yukon and NWT means both broadcast transmissions for information, enlightenment and entertainment and radio-telephone, a voice communication medium. All are subject to CRTC regulations and licensing procedures. Because of the totally different nature of the transmissions, these are treated separately here.

11.2.1 Radio-telephone

Although many telephone conversations are carried over part of the route by radio link, the term radio-telephone is usually reserved for simplex systems. These are characterized by the use of a single channel shared in turn by the persons communicating, so that A listens while B speaks and vice versa.

Both Bell Canada and NorthwesTel provide mobile radio-telephone service from many centres throughout the North. This provides an effective extension of the switched telephone network.

In addition to mobile telephone service, stand-alone radio-telephone is widely used. Equipment ranges from hand-held, battery-operated transceivers operated under the provisions of the General Radio Service (often erroneously called Citizen's Band, the American equivalent) to sophisticated equipment to keep parts of a widely dispersed oil exploration company in touch with one another and with field offices.

Both FM (frequency modulated) and AM (amplitude modulated) signals are employed. Except for the very lowest power transceivers used in General Radio Service, all equipment must be licensed by the Department of Communications (DOC).

11.2.2 Radio and Television Broadcast Facilities

Radio and television broadcast services in NWT and Yukon are provided by two classes of station. There is, first, the typical licensed radio broadcast station which originates much of its own programming and also uses network feed to provide programs of more than local interest; as of summer 1984 there are two such stations in Yukon and nine in NWT. They are listed in Table 11-2 with hours of operation, operating frequency, address of the station and name of the owner along with some indication of the type of programming offered.

In addition to the stations listed in Table 11-2 there is a verv much longer list of transmitters intended to provide both radio and television service to their immediate areas.

These may be provided with a signal for re-broadcast from a production centre (see Section 11.3) via a land line or microwave link or, more usually, by a receiver which can pick up the signal broadcast by a satellite.

Some of the stations listed in Table 11-2 also appear in Table 11-3 or 11-4 because they function as television repeaters as well as radio broadcasters.

There may or may not be provision for the addition of any local program input (see Section 11.3). Table 11-3 shows station locations, CBC program feed if any and brief notes on equipment for stations in Yukon. Table 11-4 provides the same information for NWT. See the end of each table for the meaning of abbreviations used.

11.3 Radio and Television Programming

An increasing proportion of the programming on radio and, to a lesser extent, television is produced especially for northern residents.

The radio stations listed in Table 11-2 produce their own programs and use such network material as suits their needs. Much of the radio production work is done by the CBC NORTHERN SERVICE, which has its headquarters in Ottawa, from which four production centres in NWT, one in Yukon and one in Quebec are administered.

There is a growing number of local radio societies, which are predominantly scattered throughout NWT. Daily on-air material is prepared in the local dialect and used in the immediate area.

CBC NORTHERN SERVICE now has small television production facilities in Yellowknife, Whitehorse, Montreal and Ottawa. All locations are administered through its Ottawa headquarters.

CBC NORTHERN SERVICE also provides radio and television access to northern native communications groups. For details consult *Assistance to Other Broadcasters*.

11.3.1 CBC NORTHERN SERVICE, Radio

There are important decisions to be made in the North on resource development, the resolution of aboriginal rights and native land claims and on the potential development of both territories, among others. These decisions depend on current and comprehensive information which only the CBC is in a position to provide. The challenge is a formidable one.

While the audience is only approximately 80,000 persons, it is scattered over 4,000,000 km^2, of bush, muskeg, tundra and barren land. Small settlements are spread from 55 degrees latitude to almost the North Pole. The people of Yukon and Northwest Territories, and the Western Arctic speak more than a dozen different languages.

CBC NORTHERN SERVICE radio broadcasts in eight languages from six production centres and in four time zones. Communities of over 500 people have transmitters supplied by the CBC; those under 500 have transmitters supplied by the territorial governments.

Each week, CBC generates about 220 hours of local programming which represents the voices, ideas and concerns of about 100 northern citizens. Each year, approximately 25,000 stories are presented within the regular daily programs.

Radio programming from Whitehorse is directed to a largely English-speaking audience and little native language programming is originated. CBC Inuvik produces English, Inuvialuktun and Slavey, while Yellowknife provides English, Chipewyan, Slavey and Dogrib. Residents in the Central and Eastern Arctic are able to receive English and Inuktitut from the CBC operations in Rankin Inlet and Frobisher Bay. Because there are fewer non-natives in these regions, Inuktitut is the predominant language produced.

In addition, specials are produced in each of the five northern regions, which can range from concerts of northern musicians and dancers, to coverage of the Arctic Winter Games, to live broadcasts of territorial election results.

Assistance to Other Broadcasters

CBC NORTHERN SERVICE provided:

- continued distribution of independent native TV programs from the Inuit Broadcasting Corporation (IBC); Taqramiut Nipingat Incorporated (TNI); Inuvialuit Communications Society (ICS); Northern Native Broadcasting (NNBY), Yukon; and Societé Communications Attikameks et Montagnais (SOCAM), Quebec, is exploring television production for 1987.
- continued distribution of independent native radio programs from the Societé Communications Attikameks et Montagnais (SOCAM), Quebec; James Bay Cree Communications, Quebec; and Taqramiut Nipingat Incorporated (TNI), Quebec.
- temporary replacement transmitters to private community stations in Baker Lake and Tuktoyaktuk.

Training

Northern Service carries out regular training for its native and non-native employees in the following areas: native staff development, journalism, technical training and administrative services.

Broadcast Recordings

Over the years, approximately 35 long-playing albums have been produced featuring northern artists. Recently, seven albums were made commercially available for the first time. Making their debut at Expo 86, the albums represent the unique traditional and contemporary musical heritage of the North. The new series is available from CBC Enterprises (1-800-361-5154).

Awards

CBC NORTHERN SERVICE Radio's standard of excellence was honoured on several occasions throughout the year. "Kill The Feelings First," a 60-minute documentary focusing on suicide in the North, won a prestigious Gabriel Award in Texas, U.S.A. CBC Radio also won a National Journalism Award from the Canadian Petroleum Association.

11.3.2 Radio Programming other than CBC

At all settlements italicized in Table 11-4, there is a radio society. By arrangement with the CBC, the society in a community takes over the local repeater at a pre-arranged time and broadcasts locally produced programming to its own area. This enables a local group to broadcast music of its own choosing, news in the local dialect or other items of community interest. The facility can be, and has been, used at times to direct the search for lost hunting parties.

In Yukon, native language programming has taken another form. A native communication society, Northern Native Broadcasting, (NNBY), has established a network of stations at Haines Junction, Old Crow, Pelly Crossing, Ross River and Whitehorse. Programming includes native languages, covering community information and music.

11.3.3 Television Programming Transmitted by CBC

Residents of Yukon, Northwest Territories, northern Quebec and Labrador do not receive the same level of CBC regional programming on television as they do on radio. CBC's NORTHERN SERVICE began modest television production operations in Montreal in 1973. Production of programs in the North did not begin until 1978 when new CBC facilities were constructed in Yellowknife.

CBC network television programming is available to about 97 per cent of the northern audience, through CBC's Network Control Centre (NCC) for satellite transmission in Toronto. The challenge faced in the North is to supplement network programs with an adequate regional service, particularly information programming. NORTHERN SERVICE operates small television production facilities in Yellowknife, Whitehorse, Montreal and Ottawa. It produces "Tarqravut," an Inuit program using CBOT Ottawa's facilities and "Maamuitau," a Cree program produced in the Maison Radio Canada Production Centre in Montreal. As yet, there is no video up-link available in Yellowknife, with the result that programming produced must be flown south in order to be broadcast back to the North via satellite from NCC. Included in this unorthodox broadcasting system are three shows: "Northland", "Focus North" and "Dene Series".

The CBC NORTH program "Northland" documents in video the cultural heritage and traditional lifestyles of northern people, as well as a pan-northern view of the Arctic's beauty. Half of the 13 episodes of "Northland" are produced by the CBC, with the balance co-produced with independent film-makers.

"Focus North" is a 25-episode current affairs series presenting in-depth analysis of major northern issues and events. Originating in Yellowknife, the program is one-half hour in length.

Both programs are broadcast in English and repeated in Inuktitut.

The people of the Mackenzie Valley, Slavey, Dogrib, Chipewyan and Loucheux are the subject of the "Dene Series". The culture, traditional values and lifestyles of these western natives are portrayed in 13 half-hour shows. The series offers three shows in each of the Dene languages. The entire series is also rebroadcast in English.

The weekly half-hour series "Tarqravut" was originally produced in Montreal, however, the production was moved to Ottawa in 1982-83, as part of the integration of the southern television operations. The program will soon be moved again to the Yellowknife production centre.

On-air scheduling, public service announcements and production of station breaks is handled by the operations in Ottawa.

A recent CBC reorganization has placed the native language broadcast activities of the CBC in Northern Quebec under the stewardship of the CBC NORTHERN SERVICE. A unit in Montreal produces a Cree language program "Maamuitau" for the communities of the James Bay area.

The CBC has continued to share its television distribution facilities in the eastern half of NWT with the Inuit Broadcasting Corporation (IBC), an independent native production company which airs 8.5 hours per week of Inuktitut television from studios in the NWT and northern Quebec. IBC operates a video up-link in Frobisher Bay from where it can access the CBC satellite channel at specified times to distribute its programs to about 36 Inuit communities in Labrador, northern Quebec, and NWT.

Most of the non-English language television is in Inuktitut and is produced by the Inuit Broadcasting Corporation (IBC) and Taqramiut Nipingat Inc.(TNI). The programs are broadcast under an Access agreement between CBC and IBC. In order to understand the situation it is necessary to describe the origin of IBC.

In 1978, "Inukshuk", a project formulated by the Inuit Tapirisat of Canada (ITC), was funded by the departments of Communications (DOC) and Indian and Northern Affairs (INAC) under an experimental DOC program using the ANIK-B satellite. Under the same program, Inuit of northern Quebec, through their communications society, Taqramiut Nipingat Inc. (TNI), organized a similar project called "Naalakvik II". The objective was to develop native expertise in program production and broadcasting. Satellite earth stations were set up in Eskimo Point, Pond Inlet, Cambridge Bay, Igloolik and Baker Lake. There was a production centre at Baker Lake and a studio in Frobisher Bay. Experimental up-link facilities were provided at Baker Lake, Frobisher Bay and in Saglouc, Quebec.

Over the three-year life of the project, ITC worked with the Pond Inlet Television Society to produce programming and to purchase material from Cambridge Bay and Eskimo Point.

The experimental program developed the skills and experience which were needed and one result was the establishment of IBC. This is an independent entity whose board represents all the Inuit regions of Canada, including the NWT, northern Quebec and Labrador. IBC is licensed to broadcast by the CRTC and it operates production centres at Baker Lake and Frobisher Bay.

There are also less well-equipped production centres at Cambridge Bay, Eskimo Point and Pond Inlet. Material originating at these locations is sent to Baker Lake or Frobisher, where it is incorporated into the programs produced there.

TNI, as an affiliate of IBC, has a base of operations in Saglouc, Quebec. Footage produced there is also used in the preparation of IBC programs.

IBC's up-link in Frobisher Bay started providing access to the satellite directly on April 19, 1982.

In Frobisher Bay, "Nunatsiakmiut", an Inuit communication society funded by the Department of the Secretary of State, has also been consolidated with IBC and their programs are included in the Access agreement with CBC.

Awards

CBC NORTH was the recipient of several awards, including the Alaska Press Club of Excellence for the Focus North entry "Berger in Alaska", the Canadian Petroleum Association and a "Prix Anik" from the Canadian Broadcasting Corporation.

11.3.4 Television Programming, Other

There are an increasing number of TV series available to northerners. One of the alternatives to CBC television coverage in most of the North is provided via a satellite and pay TV package of signals made available by Canadian Satellite Communications Incorporated (CANCOM). As a part of the service description included with the CANCOM application to the CRTC, it was specified that there would be time allocated for native language programming, when available, for up to 10 hours per week. However, as of early 1982, programming was entirely in English.

The CANCOM network of licensed stations is increasing rapidly. As of March 1982, earth-receiving stations and low-power television repeaters were located at the places shown in Table 11-5.

11.4 Newspapers

The newspapers listed below are those whose names appear in Canadian Advertisers Rates and Data. There may be community newsletters in other centres. Unless otherwise noted all papers listed below are published weekly.

11.4.1 Yukon

Whitehorse:
Whitehorse Star
2149 Second Avenue
Whitehorse Y1A 1C5
(Monday to Friday)

Yukon News
211 Wood Street
Whitehorse Y1A 2E4
(Wednesday's only)

Dan Sha (formerly Yukon Indian News)
22 Nisutlin Drive
Whitehorse Y1A 3S5
(monthly)

11.4.2 Northwest Territories

Fort Smith:
Slave River Journal
P.O. Box 990
Fort Smith X0E 0P0

Frobisher Bay:
Nunatsiaq News
Box 8
Frobisher Bay X0A 0H0

Hay River:
The Hub
Box 1250
Hay River X0E 0R0

Inuvik:
The Drum
PO Box 2660
Inuvik X0E 0T0

Yellowknife:
Native Press
Box 1919
Yellowknife X0E 1H0
(Every other Thursday)

News/North
Box 2820
Yellowknife X0E 1H0

Yellowknifer
Box 2820
Yellowknife X1A 2R1

11.5 Postal and Courier Service

11.5.1 Postal Service

Canada Post provides mail service throughout the North. There are 72 post offices, some of which are operated by individuals or firms on behalf of the corporation. Of these, Tuktoyaktuk is one of the farthest north, Beaver Creek is the most westerly and Broughton Island is the farthest to the east.

Mail is routed to the Arctic through various southern points. The mail base for the eastern Arctic is Montreal, and all mail originating east of Winnipeg for Fort Chimo, Frobisher Bay, Hall Beach and Resolute goes through that location. Mail originating west of Winnipeg for eastern Arctic destinations is gathered in Edmonton for shipment to Resolute for onward transmission. All mail for Keewatin District goes through Churchill and for Mackenzie through Edmonton. Yukon mail, depending upon the point of origin, is handled at either Edmonton or Vancouver.

11.5.2 Courier Service

The major couriers (Banker's Dispatch and Purolator) offer service to many northern points including Whitehorse and Yellowknife. Both have a surcharge of $25.00 to $35.00 for carriage beyond Edmonton and the consignee is expected to pick up the shipment at the airline counter in some cities.

Table 11-1

Telephone service in NWT

	Service by Bell Canadab/1	Service by NorthwesTelb/2		
	Telephone	Telephone via		HF
Community	via Satellite	Satellite	Microwave Link	Radio Telephone
Aklavik			X	
Arctic Bay	X			
Arctic Red River			X	
Baker Lake	X			
Bathurst Inlet				X
Broughton Island	X			
Cambridge Bay		X		
Cape Dorset	X			
Chesterfield Inlet	X			
Clyde River	X			
Colville Lake				X
Coppermine			X	
Coral Harbour	X			
Detah				X
Enterprise			X	
Eskimo Point	X			
Fort Franklin			X	
Fort Good Hope			X	
Fort Liard			X	
Fort McPherson			X	
Fort Norman			X	
Fort Providence			X	
Fort Resolution			X	
Fort Simpson			X	
Fort Smith			X	
Frobisher Bay	X			
Gjoa Haven			X	
Grise Fiord	X			
Hall Beach	X			
Hay River			X	
Holman		X		
Igloolik	X			
Inuvik			X	
Jean Marie River				X
Kakisa				X
Lac La Martre				X
Lake Harbour	X			
Little Cornwallis Island	X			
Nahanni Butte				X
Nanisivik	X			
Norman Wells			X	
Pangnirtung	X			
Paulatuk			X	
Pelly Bay			X	
Pine Point			X	
Pond Inlet	X			

Table 11-1 *(continued)*

Table 11-1 *(continued)*

Telephone service in NWT

Community	Service by Bell Canadab/1 Telephone via Satellite	Service by NorthwesTelb/2 Telephone via Satellite	Telephone via Microwave Link	HF Radio Telephone
Port Radium			X	
Rae Edzo			X	
Rae Lakes				X
Rankin Inlet	X			
Repulse Bay	X			
Resolute	X			
Sachs Harbour		X		
Sanikiluaq	X			
Snare Lake				X
Snowdrift		X		
Spence Bay		X		
Trout Lake				X
Tuktoyaktuk			X	
Tungsten			X	
Whale Cove	X			
Wrigley			X	
Yellowknife			X	

Source[1]: Bell Canada, Quebec City
Source[2]: NWT Data Book 1984/85

Table 11-2

Radio stations licensed by CRTC in Yukon and NWT

Location:	
Whitehorse, Yukon	
CHON FM	Dial 98.1
4228-A 4th Avenue	or 90.5
Y1A 1K1	(outlying communities)
Tel: (403) 668-6629	
On Air:	0700-1245
Owner:	Northern Native Broadcasting Yukon
News/Public Affairs:	0700, 0800, 0900, 1230
News Deadlines:	Open 0600-2200
CFWH AM	Dial 570
3103-3rd Avenue	
Box 4430, Y1A 1E5	
Tel: (403)667-6261	
On Air:	0600-0100 hours
Owner:	Canadian Broadcasting Corporation
News/Public Affairs:	0600-0900, 1200-1400 & 1500-1800 hours daily
News Deadlines:	Open 0600-1800 hours daily
CKRW AM	Dial 610
203-4103 4th Avenue	
Y1A 1H6	
Tel: (403)668-6100	
On Air:	24 hours
Owner:	Klondike Broadcasting Company Ltd.

Table 11-2 *(continued)*

Format:	Adult Contemporary, Oldies, VHF radios, radio-phone
News Deadlines:	Open 0600-2400 hours
CFS Alert, NWT	
CHAR FM	Dial 105.9
Bldg. 21, CFS Alert	
MPO 310, Belleville,	
Ontario K0K 3S0	
On Air:	24 hours. Non-commercial
Owner:	Department of National Defence
Format:	Variety/All
News Deadlines:	Local items only
Baker Lake, NWT	
CKQN FM	Dial 99.3
Box 4, X0C 0A0	
Tel: (819)793-2962	
On Air:	1230-1330 & 1800-2100 hours Non-commercial
Owner:	Qamanituap Naalautaa Society
Format:	Multi, Inuktitut and English

Table 11-2 *(continued)*

Radio stations licensed by CRTC in Yukon and NWT

Fort Simpson, NWT	
CFMR FM	Dial 97.1
Box 119, X0E 0N0	
On Air:	Irregular each week Non-commercial
Owner:	Fort Simpson Broadcasting Society
Format:	Multi, Inuktitut and English
Frobisher Bay, NWT	
CFFB AM	Dial 1240
Box 490, X0A 0H0	
Tel: (819)979-5353	
On Air:	0600-0100 hours
Owner:	Canadian Broadcasting Corporation
Format:	Multi-format
News/Public Affairs:	0600-0900, 1200-1300 & 1500-1800 hours
News Deadlines:	Open 0600-1800 hours daily
Hay River, NWT	
CKHR FM	Dial 107.3
Ptarmigan Inn	
Box 949, XOE ORO	
Tel: (403)874-2547	
On Air:	0900-2400 hours (18 hours Friday and Saturday)
Owner:	Hay River Broadcasting Society
Format:	Multi, Educational, Music
Inuvik, NWT	
CHAK	Dial 860
MacKenzie Road, Bag Service 8, XOE OTO	
Tel: (403)979-4411	
On Air:	0600-0100 hours
Owner:	Canadian Broadcasting Corporation
Format:	Multi-Format
News/Public Affairs:	0600-0900, 1200-1400 & 1600-1800 hours daily
News Deadlines:	Open 0600-1800 hours daily
Rankin Inlet, NWT	
CBQR AM	Dial 1160
Rankin Inlet, XOC OGO	
Tel: (819)645-2885	
On Air:	0600-0100 hours
Owner:	Canadian Broadcasting Corporation
Format:	Multi-format/All/Native
News/Public Affairs:	1130-1230 and 1730-1830
News Deadlines:	Open 0600-1800 hours daily
Yellowknife, NWT	
CFYK AM	Dial 1340
Box 160, X1A 2N2	
Tel: (403)873-3464	
On Air:	0600-0100 hours
Owner:	Canadian Broadcasting Corporation
Format:	Multi-format/All
News/Public Affairs:	0600-0900, 1200-1800 hours daily
News Deadlines:	Open 0600-1800 hours daily
CJCD AM	Dial 1240
5103-51st Street	
Box 218, X1A 2N2	
Tel: (403)920-4636	
On Air:	0600-0100 hours
Owner:	CJCD Radio Ltd.
Parent Company:	Yellowknife Broadcasters Ltd., 50%
Format:	Adult Contemporary/25-49

Table 11-3

Radio and television repeater stations in Yukon as of June 1985

Community	CBC Yukon Radio	CBC TV Radio C	Reception		
			Radio	Television	
Beaver Creek	yes	yes	lprt	CORB	
Burwash Landing	yes	no	off-air from Destruction Bay	— —	
Carcross/Tagish	yes	yes	off-air from Whitehorse	CORB	
Carmacks	yes	yes	lprt	CORB	
Dawson City	yes	yes	lprt	CBC	tvro lptv
Destruction Bay	yes	yes	lprt	CORB	
Elsa/Calumet	yes	yes	lprt	CBC	lptv
Faro	yes	yes	lprt	CBC	tvro lptv
Haines Junction	yes	yes	lprt	CORB	
Jakes Corner	yes	no	lprt	CORB	
Keno Hill	no	yes	— —	CBC	tvro lptv
Mayo	yes	yes	lprt	CBC	tvro lptv
Miles Ridge	no	yes	— —	CORB	
Old Crow	no	yes	— —	CORB	
Pelly Crossing	yes	yes	— —	CORB	
Ross River	yes	no	lprt	CORB	
Stewart Crossing	no	yes	— —	CORB	
Swift River	yes	no	lprt	— —	
Teslin	yes	yes	lprt	CORB	
Watson Lake	yes	yes	lprt	CBC	tvro lptv
Whitehorse	yes	yes	CBC-owned station	Telesat CBC	tvro lptv

CORB — community owned rebroadcaster
tvro — television receive only satellite dish
lptv — low power television transmitter
lprt — low power radio transmitter

Source: Planning and Scheduling Branch, CRTC

Table 11-4

Radio and television repeater stations in NWT as of June 1985

Community (population)	Radio service & TV service	Notes on equipment, facilities
Aklavik (818)	CBC-Inuvik CBC-C	None. TV & radio off-air Inuvik.
[Arctic Bay] (401)	CFFB CBC-B	GNWT tvro, lptv, lprt.
Arctic Red River (120)	CBC-Inuvik CBC-C	GNWT tvro, lptv, lprt.
[Baker Lake] (1062)	CFFB CBC-B	Telesat tvro, CBC lptv, private lprt.
[Broughton Island] (323)	CFFB CBC-B	GNWT tvro, lptv, lprt.
Cambridge Bay (907)	CBC-Inuvik CBC-C	Telesat tvro, CBC lptv, lprt.
[Cape Dorset] (763)	CFFB CBC-B	Telesat tvro, CBC lptv, lprt.
[Chesterfield Inlet] (275)	CFFB CBC-B	GNWT tvro, lptv, lprt.
[Clyde River] (443)	CFFB CBC-B	GNWT tvro, lptv, lprt.
[Coppermine] (761)	CBC-Inuvik CBC-C	CBC tvro, lptv, lprt.
[Coral Harbour] (425)	CFFB CBC-B	GNWT tvro, lptv, lprt.
Detah (158)	CBC-YK CBC-C	None. TV & radio off-air Yellowknife
[Eskimo Point] (994)	CFFB CBC-B	Telesat tvro, CBC lptv, lprt.
[Fort Franklin] (545)	CBC-Inuvik CBC-C	CBC tvro, lptv, lprt.
[Fort Good Hope] (460)	CBC-Inuvik CBC-C	CBC tvto, lptv, lprt.
Fort Liard (342)	CBC-YK CBC-C	GNWT tvro, lptv, lprt.
[Fort McPherson] (632)	CBC-Inuvik CBC-C	CBC tvro, lptv, lprt.
[Fort Norman] (359)	CBC-Inuvik CBC-C	GNWT tvro, lptv, CBC lprt.
Fort Providence (554)	CBC-YK CBC-C	CBC tvro, lptv, lprt.
Fort Resolution (512)	CBC-YK CBC-C	CBC tvro, lptv lprt.
Fort Simpson (992)	CBC-YK CBC-C	CBC tvro, lptv, lprt.
Fort Smith (2297)	CBC-YK CBC-C	CBC tvro, lptv, lprt.
Frobisher Bay (2419)	CFFB CBC-B	Telesat tvro, CBC lptv, lprt.
[Gjoa Haven] (517)	AA-4 CBC-C	CBC tvro, lptv, lprt.
[Grise Fiord] (106)	AA-4 CBC-B	GNWT tvro, lptv, lprt.
Hall Beach (400)	AA-4 CBC-B	GNWT tvro, lptv, lprt.
Hay River (3129)	CBC-YK CBC-C	CBC tvro, lptv, lprt.
Holman Island (358)	CBC-Inuvik CBC-C	GNWT tvro, lptv, lprt.
[Igloolik] (798)	AA-4 CBC-B	CBC tvro, lptv lprt.
Inuvik (2929)	CBC-Inuvik CBC-C	Telesat tvro, CBC lptv, lprt.
Lac La Martre (238)	CBC-YK CBC-C	GNWT tvro, lptv, lprt.
[Lake Harbour] (297)	AA-4 CBC-B	GNWT tvro, lptv, lprt.
[Nanisivik] (278)	BA-2 CBC-B	Private tvro, lptv, lprt.
Norman Wells (384	CBC-Inuvik CBC-C	CBC tvro, lptv, lprt.
[Pangnirtung] (899)	AA-4 CBC-B	Telesat tvro, CBC lptv, lprt.
Paulatuk (181)	CBC-Inuvik CBC-C	GNWT tvro, lptv lprt.
[Pelly Bay] (270)	AA-4 CBC-C	GNWT, tvro, lptv, lprt.
Pine Point (1647)	CBC-YK CBC-C	CBC tvro, lptv, lprt.
[Pond Inlet] (647)	AA-4 CBC-B	Telesat tvro, CBC lptv, lprt.
[Rae Edzo] (1314)	CBC-YK CBC-C	CBC lptv, lprt Terres tv feed.
Rae Lakes (200)	CBC-Yellowknife CBC-C	GNWT tvro, lptv lprt.
[Rankin Inlet] (1007)	AA-4 CBC-B	Telesat tvro, CBC lptv, lprt.
[Repulse Bay] (328)	AA-4 CBC-B	GNWT tvro, lptv, lprt.
Resolute (155)	AA-4 CBC-B	Telesat tvro, CBC lptv, lprt.

Table 11-4 *(continued)*

Radio and television repeater stations in NWT as of June 1985

Community (population)	Radio service & TV service	Notes on equipment, facilities
Sachs Harbour (172)	CBC-Inuvik CBC-C	GNWT tvro, lptv, lprt.
Yellowknife (9550)	CBC-YK CBC-C	Telesat tvro, CBC lptv, lprt.
[Sanikiluaq] (370)	AA-4 CBC-B	GNWT tvro, lptv, private lprt.
Snowdrift (285)	CBC-YK CBC-C	GNWT tvro, lptv, lprt.
[Spence Bay] (465)	AA-4 CBC-C	Telesat tvro, CBC lptv, lprt.
[Tuktoyaktuk] (762)	CBC-Inuvik CBC-C	CBC tvro, lptv, lprt.
Tungsten (508)	CBC-Whitehorse CBC-C	Private tvro, lptv, lprt.
[Whale Cove] (188)	AA-4 CBC-B	GNWT tvro, lptv, lprt.
Wrigley (162)	CBC-YK CBC-C	CBC lprt, GNWT tvro, lptv.

Guide to Abbreviations:

GNWT	— Government of the Northwest Territories
YK	— Yellowknife
tvro	— television receive only satellite dish
lptv	— low power television transmitter
lprt	— low power radio transmitter
Terres	— terrestrial feed, such as land line or microwave
AA-4	— CBC Northern Service radio from Frobisher Bay and Rankin Inlet
BA-2	— CBC English network radio with some Ontario programming
CFFB	— call letters for mother station, Frobisher Bay
(824)	— population figures in parentheses are for December 1980 from the NWT government Bureau of Statistics
CBC-B	— CBC English network television, Atlantic time zone release
CBC-C	— CBC English network television, Pacific time zone release
[ ]	— there is a radio society in the settlement

Table 11-5

Some of the locations of low power repeaters relaying CANCOM signal as of June 1985

Aklavik MTV	Hay River MTV
Fort Simpson MTV/STV	Takhini/McPherson STV
Frobisher Bay MTV/STV	Wolfe Creek/Carcross Corners STV
Inuvik STV	

MTV: Multi Channel
STV: Subscriber Television
Cable television service is available in Whitehorse and in Yellowknife as well as in Fort Smith and Watson Lake.

12.0 Socio-Economic Infrastructure

12.1 General

This is a time of transition in Canada's North. Traditional lifestyles are giving way as competing uses for land and activities foreign to the region make their maintenance difficult, while the possibility of participation in the wage economy provides an alternative for some of those affected.

12.1.1 Economic Development Agreements

The federal government signed an Economic Development Agreement (EDA) with Northwest Territories in 1982 and with Yukon in 1984 to plan and implement economic development activities through negotiated subsidiary agreements.

The subsidiary agreements are managed jointly by management committees with equal representation from the federal and territorial governments. These committees are responsible for the selection of projects and the overall management and administration of the agreements.

The policy committee for each EDA is responsible for activities stemming from the parent agreement and the activities of the management committees.

2.1.1.1 Canada/Yukon Economic Development Agreement

The five-year Canada/Yukon EDA, signed in June 1984, paved the way for negotiations on four subsidiary agreements. They are directed toward improving the Yukon economy in tourism, renewable resources, mineral resources and economic development planning. The four subsidiary agreements, all signed in May 1985, have a budget of $18.7 million. The federal government provides $15.9 million, the Yukon government $2.8 million.

The $10-million Tourism Subsidiary Agreement supports projects in product development, tourism industry and market development.

The aim of the $4.2-million Renewable Resources Subsidiary Agreement is to diversify and strengthen the role of renewable resources in Yukon's economy. Projects involve agriculture, wildlife, fur harvesting, agriculture and fisheries.

The Mineral Resources Subsidiary Agreement provides $3.9 million to stimulate investment in exploration, improve the economic performance of placer mining, and to accelerate rewrites in geological mapping and geochemical surveys.

In March 1986, an additional mining-related Mining Industry Recovery Subsidiary Agreement was implemented.

The two programs of the $667,000 Economic Development Planning Subsidiary Agreement support economic planning studies and community economic development planning.

12.1.1.2 Canada/NWT Economic Development Agreement

Under the four-year Canada/NWT EDA, which runs until March 31, 1987, three subsidiary agreements provide $21 million to the NWT economy. The federal government is contributing $19 million, the territorial government $2 million.

Through joint decision making and intergovernmental co-operation, the EDA aims to improve the way northerners do business by encouraging northerners to identify and act upon economic development opportunities through the programs offered by the subsidiary agreements.

There are three subagreements of the Canada/NWT EDA. They cover development in three fields: human resources, natural resources and domestic market development.

The $5.6-million Human Resources Development Subagreement provides funds to develop management skills and to operate the Options North program, which offers support to natives entering the wage economy. As of July 1986, 77 projects were approved and more than $4.3 million had been authorized.

The $4.7-million Natural Resource Development Subagreement encourages intersettlement trade and renewable resource projects. As of July 1986, 55 projects had been funded for more than $3.4 million.

The Domestic Market Development Subagreement has a budget of $10.7 million. It assists new and existing businesses, funds tourism development, and helps community-based economic planning. As of July 1986, 188 projects worth more than $8 million had been approved.

12.2 Associations and Organizations

12.2.1 General

Associations and organizations in Yukon and the Northwest Territories, as elsewhere, range from the purely social and completely informal to structured entities with distinct ties to the political, governmental or economic fabric. This section will deal only with those having a more or less formal nature and in particular with those which are registered under the Societies Ordinances of the NWT or Yukon.

Registration as a society provides members with protection from unlimited liability in the event of suit, since any acts of the society are deemed to be acts of that legal entity and not of its individual members.

To be registered, a society must comply with the requirements of the Societies Ordinance of the territory concerned. In substance, these require a statement of the aims and objectives of the society, its location, its organization and a copy of its bylaws. In Yukon, a society must submit an audited annual report; in NWT, the report is required but the necessity for audit is less precisely spelled out. Failure to submit proper reports is cause for removal of a society's registration. An amendment to the Societies Ordinance in NWT now allows for fees to be set by regulation instead of by statute.

12.2.2 Hunters' and Trappers' Associations

Among the more important registered societies particularly in NWT, are the hunters' and trappers' associations. In NWT, virtually every Inuit settlement has an association and although these are still relatively new, having existed for the most part for only 12 years or so, they are playing an active role in many fields.

Many hunters' and trappers' associations function largely as clubs for the interchange of information and contact with the territorial government, while others are more active and engage in the marketing of furs and country foods, act as outfitters to visitors from outside and advise the territorial government on wildlife legislation.

One role of the hunters' and trappers' associations is the exercise of discretionary power in the distribution among their members of the right to hunt polar bear and muskox. Hunting of these species is controlled by the territorial government, which allows the associations to allocate the quota among individual hunters in the community.

There are several regional groupings of hunters' and trappers' associations at various stages of development. The Keewatin Wildlife Federation was the first to be established; the Baffin Regional Hunters and Trappers Association followed and the Kitikmeot HTA is a more recently formed group of the associations of the central Arctic.

In general, there are no hunters' and trappers' associations, as such, in areas where the population is predominantly Indian; there, the functions played by these associations are usually dealt with by the band council. Under the Western Arctic Claim Settlement, the Inuvialuit have an Inuvialuit Game Council which has an advisory role in policies and regulations concerning wildlife.

As well as the hunters' and trappers' associations, there is NWT Outfitter's Association, whose membership consists of the non-native outfitters of the Mackenzie Mountains area. This association does not participate in the polar bear or muskox hunting, but is concerned with the hunting of other big-game species.

In Yukon, there is a considerable difference. There, the Yukon Trappers Association has been active for six years in setting up regional councils. These in turn will foster the growth of local associations, a process which appears to be almost the opposite of the situation in NWT. The local associations will not have control functions, but will provide training in cooperation with government and offer the opportunity for interchange of experience among their members. In Yukon, there is also a very active Fish and Game Association, whose membership consists largely of non-native hunters and anglers. There is also an Outfitters Association in which the 20 registered outfitters of Yukon hold membership.

12.2.3 Other Local Councils and Committees

Both in Yukon and NWT, municipal councils are provided for under ordinances in NWT and acts in Yukon. In the NWT, even quite small communities have settlement or hamlet councils which exercise such powers as the right to assess business taxes. Similiarly, in Yukon, any unorganized community may be established as a hamlet with an elected advisory council.

In NWT, committees of volunteers, formed generally under the auspices of the settlement council, are active in health, education and a variety of social concerns (e.g., recreation, land use, alcohol education, land claims). These committees obtain program funds directly from their community councils, from territorial or federal governments, or from native associations.

Alcohol control committees are somewhat different in structure. These are essentially ad hoc committees formed to direct and administer a specific program. They are responsible to NWT alcohol and drug council, which has representation from all native organizations. Programs may range from purely local educational and control measures to professionally staffed detoxification and rehabilitation establishments.

Other locally important groups in NWT are the radio societies located in various settlements throughout the territory. They are voluntary organizations producing local radio programs for broadcast on the relay transmitters which carry CBC programs for most of the broadcast day. (See also Section 11.3.)

12.2.4 Regional Groupings

Regional councils are set up to provide effective communication between communities and the territorial government in NWT. These councils are either comprehensive in scope, as with the Baffin Regional Council and the Keewatin Regional Council, or representative of special interest groups, as are, for example, the Inuvik Region Association of Local Education Authorities, the Keewatin Chamber of Commerce and the Northern Games Association* of the central Arctic. Regional associations give expression to the GNWT's policy of decentralization of decision making and they allow maximum participation and expression of local priorities.

In the Inuvik region a regional form of government has evolved under the Western Arctic Claim Settlement. The quest for greater local and regional autonomy is an objective of the regional bodies in the NWT, given the diversity of the society in different regions of the territory.

Recognition of the administrative problems attending such social, economic and cultural diversity resulted in the Fort Smith Region being divided into two separate administrative regions on April 1, 1981; the newly-established Kitikmeot Region now serves Inuit communities from Holman Island in the west to Pelly Bay in the east, from regional headquarters in Cambridge Bay.

The Regional Development Policy of the government of the NWT allows for the establishment of Development Impact Zone societies to gather local and regional views on major resource developments. They receive financial support from the GNWT and, in some cases, from the federal government and industry. The societies, made up of representatives from communities likely to be affected by development activities, act as advisory committees to the GNWT, and federal government and industry where funding is shared. There are societies for three zones: Beaufort/Mackenzie Delta; Mackenzie/Great Bear; and the High Arctic.

In Yukon, the growth of regional interest groups is less marked, though a number of territory-wide non-government organizations representing special interest groups exist; examples are the Association of Yukon Communities, Yukon Visitors Association and Yukon Family Services Association. In addition to these larger organizations, local organizations exist in several communities, such as the Whitehorse Housing Authority, the Klondike Visitors Association (in Dawson) and the Whitehorse, Faro and Watson Lake chambers of commerce.

12.2.5 Other Organizations

Societies organized in addition to those discussed above include some devoted to purely recreational pursuits, either in connection with a particular sport or activity, or for the operation of a recreational centre. Others deal with the concerns of residents, or housing in general, or such specialized interests as those of single parents.

In NWT, more than 500 societies have been registered; of these 300 to 400 are functioning at present. In Yukon, there are about 250 societies registered and of these 40 to 50 are thought to be inactive.

**"Northern Games" refers to athletic and traditional skills in this context.*

12.3 Business Organizations

Although there is a wide range of commercial and industrial establishments in NWT and Yukon, the number in any one category is small. Those listed in the *Yukon Business Directory* and *Northwest Territories Business Directory* are listed in Table 12-1.

12.3.1 Yukon Businesses

Large companies, controlled by interests outside of Yukon, have had a major influence throughout the history of Yukon economic development. The White Pass and Yukon Corporation is perhaps the outstanding example. It had its beginnings in the White Pass and Yukon Railway, which provided transportation into the territory by the turn of the century until October 1982. The Corporation has, until recently, dominated the transportation industry in Yukon through its railroad and subsidiaries which offer surface transportation over winter roads or all-weather highways. The corporation also owns an ocean shipping division and a pipeline which ships petroleum products into Yukon.

Mining and lumbering are also characterized by the presence of major corporations with effective control outside the territory. Placer mining is an exception in that there are many small companies in this field, some of which are locally owned.

While the major established companies continue to operate and to expand when the opportunity exists, there are few new large companies seeking to become established in Yukon. Most of the economic growth today is due to the development of locally controlled firms induced in part by mining, mineral, oil and gas exploration, and tourism. The re-opening of the mine at Faro (Cyprus Anvil) by Curragh Resources in the spring of 1986 after being closed for four years is expected to give a boost to the slumping Yukon economy.

The retail structure of Yukon differs greatly from that of the NWT. The Hudson's Bay Company operates only one department store in Whitehorse leaving the bulk of retailing in the hands of independents. The four co-operatives operating in Yukon at Old Crow, Teslin, Ross River and Whitehorse are owned by natives, and are independent of the Arctic Co-operatives Ltd., a dominant force in the NWT's retail structure.

A new force in Yukon economic development is the Yukon Indian Development Corporation which was established to represent the financial interests of Yukon native people. It functions more or less as a holding company, providing services that will enhance band corporations, invest in businesses that yield returns at the least possible risk, and offer natives employment opportunities.

The *Yukon Business Directory*, published annually, lists all Yukon businesses, describes their activities and indexes them according to the Standard Industrial Classification listings. The Yukon Economic Development Department has a record of more than 1,500 establishments. The distribution by industry sector is shown in Table 12-2. There is also a *Yukon Native Business Directory* available which lists and describes the various native businesses operating in Yukon.

Although large non-renewable resource-oriented companies controlled from outside seem to have a dominant position in the two territorial economies, they are outnumbered by businesses which are smaller in terms of number of employees. Table 12-3 shows how the non-governmental Yukon and NWT establishments are distributed with respect to number of employees. If companies having only the proprietor employed were added, the number of small organizations would be still greater. A high percentage of small businesses is not in itself unusual; however, the almost complete absence of any locally registered companies of significant size is much less common than in Canada as a whole.

In 1985 there were some 1,700 companies registered in Yukon, many of which were listed in the *Yukon Business Directory*. Small businesses are predominant in terms of the number of establishments. Table 12-4 shows the number of employees by industry group in Yukon between 1983 and 1986.

12.3.2 NWT Businesses

Co-operatives were introduced by government into the North in 1959 in northern Quebec. In contrast to Yukon, co-operatives are an important factor in the retail structure of NWT. Today, there are 31 active NWT co-operatives distributed throughout the territory, with a combined annual sales volume of around $24 million. A federation of Arctic co-operatives was formed in 1972 to further the development of local organizations. Now called Arctic Co-operatives Ltd., it operates retail outlets for members' craft products in Yellowknife, Whitehorse, Edmonton, Inuvik and Churchill, a wholesale arts and crafts showroom in Winnipeg, and provides education, training, accounting, purchasing and other development services to its owner-member co-operatives.

Most NWT co-operatives operate as retail outlets serving as general stores in their communities; they also offer specialized services such as hotels, outfitting and guiding services, various municipal services and craft workshops.

It is estimated that over 350 northerners are directly employed by the northern co-operatives, with almost 2,000 others obtaining indirect employment through sale of their produce through local co-ops.

Moreover, it has generally been acknowledged that co-operatives have served as an important business and management training ground for many northern people, as they were locally autonomous bodies long before local municipal government was introduced to the Arctic regions. Thus, co-op boards with directors and a management structure helped familiarize many northerners with such things as annual elections and budgeting. As a result, many other small businesses which have opened in the North have benefited from employing people who have learned management and marketing skills from co-operative employment.

The most dominant force within the NWT retail structure, for both food and non-food items, is the Hudson's Bay Company. Today there are 39 retail outlets operating in NWT, all of which are supplied from company warehouses in southern Canada. These warehouses reduce the need for the local retailer to buy and store large volumes of food, which keeps costs down. The company also owns its own supply ships which are used for summer resupply in eastern NWT.

As of 1984, there were 3,158 companies registered in NWT, of which 1,200 were incorporated in the territories. Many are listed in the *Northwest Territories Business Directory*, first published in 1984. In terms of number of establishments, small businesses predominate. Table 12-5 shows the number of employees by industry group in NWT.

A new business form now active in the territories is the development corporation. Native-owned development corporations range from the community/band-operated Rae Edzo Development Corporation to the four regional organizations — the Inuit Development Corporation (now renamed Nunasi) in eastern NWT, the Inuvialuit Development Corporation in northwestern NWT, and the Metis Development Corporation and the Denendeh Development Corporation in western NWT. These corporations provide managerial and financial assistance to operating divisions active in many fields, including the owning and managing of real estate, operation of taxis and hotels, labour contracting, and brokerage in the construction industry. In eastern NWT, Nunasi Corporation is also becoming involved in training its people. Nunasi has formed a task force to study the problem of inadequate management training programs that currently exists in the central and eastern Arctic. Nunasi plans to implement its own training program once study results are known.

There are also non-native development corporations operating in NWT such as the Hay River and Area Economic Development Corporation, owned by a group of businessmen, and active in shipping and the general community resupply fields. These non-native corporations tend to be centred in western NWT where the majority of non-native people reside.

12.4 Business Regulation and Taxes

12.4.1 Licences and Regulations

In Northwest Territories, business licences are the responsibility of municipal (including hamlet) councils under the authority provided by the Municipal Ordinance.

In unorganized areas, the Government of the Northwest Territories (GNWT) retains the licensing function under the provisions of the Business Licence Ordinance.

These provisions apply to essentially all business except direct sellers (i.e., door-to-door vendors) who are controlled by the GNWT under the Consumer's Protection Ordinance, and hunting and trapping. Entry into hunting and trapping is dealt with under Fur Export and the Game Ordinances and is administered by territorial wildlife officials.

Native residents of NWT have traditional hunting and trapping rights for family use, but for commercial activities they require a General Hunting Licence. This does not cover the taking of muskox or polar bear, both of which are controlled through the local hunters' and trappers' associations.

Non-native residents may apply for a licence after two years' residence in NWT.

The situation in Yukon is somewhat different. All businesses except mining exploration and development, oil and gas exploration and development, and newspaper publishing require licensing under the Business Licence Act by the Government of Yukon; other exceptions are businesses in Whitehorse, Faro, Watson Lake or Dawson City, where licences are granted by the municipality under the authority of the Municipal Act.

Mineral and hydrocarbon exploration and development are governed by the *Canada Mining Regulations* promulgated under the *Public Lands Grant Act*, and *Territorial Lands Act* and the *Oil and Gas Production and Conservation Act*.

Newspaper publishing is dealt with under the Newspaper Ordinance.

12.4.2 Taxes — Personal, Land, Business

With a minor exception concerning business tax, the taxation situation is the same in Yukon as in the NWT. Both territories levy income and corporate taxes which are collected as in the provinces by the federal government acting on behalf of the territories.

There is authority for the imposition of sales tax, but none is levied at present except on the sale of motor fuel, liquor and tobacco.

Property taxes are levied by the territorial governments or the larger municipalities, but in both cases are collected by the territorial governments.

There is no business tax as such in Yukon, although an annual licence fee produces some revenue. In NWT, municipalities have the power to collect business taxes and do so, while the territorial government retains the taxing authority in the unorganized areas.

Neither territorial government collects any tax or royalty on the exploitation of minerals or other natural resources, which are owned by the federal government.

12.5 Health Facilities

In both Northwest Territories and Yukon, responsibility for general health care and public health programs is shared by the federal and the territorial governments.

12.5.1 Institutions, Location, Size, Services

In NWT, there are seven hospitals, three of which are operated by the Medical Services Branch of Health and Welfare Canada — the Inuvik General (55 beds) and cottage hospitals at Fort Simpson (12 beds) and Rae Edzo (12 beds). In addition, the Medical Services Branch operates: 39 nursing stations, which are equipped and staffed to handle emergencies, short-term treatment and preventive health programs; 8 health centres; and 12 health stations, dispensaries operated by local community health representatives and having scheduled visits by nurses. These institutions are staffed by approximately 194 federally employed nurses.

The NWT Department of Health operates four hospitals, including the Frobisher Bay Hospital. Stanton Yellowknife Hospital (72 beds) provides a wide range of in and out-patient services. It functions as a laboratory for other territorial hospitals and nursing stations, and has on staff specialists in many areas including obstetrics and gynecology, pediatrics, psychiatry and opthalmology; in cooperation with the Elks Lodge it has developed an audiology department with a deafness detection program and training for technicians. The H.H. Williams Memorial Hospital in Hay River is a 50-bed hospital providing acute and chronic care, emergency out-patient services, public and environmental health programs, social services and a home care program. The Fort Smith Health Centre (25 beds) has offices for visiting specialists who come from Stanton Yellowknife Hospital on a regular basis; it also offers out-patient and emergency services, extended chronic care and community home care.

Yukon's five hospitals are located in Whitehorse, Mayo, Faro, Watson Lake and Dawson City. There is also a nursing station at Old Crow. All facilities combined have a total of 159 beds and 42 cribs. In addition, there are health stations at Beaver Creek, Burwash Landing, Carcross and Upper Liard, as well as Health centres (staffed by public health nurses) at Destruction Bay, Haines Junction, Whitehorse, Teslin, Watson Lake, Ross River, Faro, Carmacks, Pelly Crossing and Mayo.

As in NWT, existing services are augmented by visiting specialists in such fields as internal medicine, pediatrics, otolaryngology dermatology, oncology, ophthalmology and orthopedics. Clinics are held several times a year in Whitehorse by specialists from outside Yukon.

12.5.2 Health Programs, Insurance, Scope, Impact

In both NWT and Yukon, the Medical Services Branch of Health and Welfare Canada provides and administers major programs in public health, including child and maternal care, family planning, tuberculosis control, infectious and chronic disease control, school health (including dental), environmental and occupational health and health education. Dental service is provided by private practitioners in the largest communities, and by government dentists and therapists elsewhere.

As a result of expanded medical services and health education in both NWT and Yukon, there has been a steady decline in the incidence of tuberculosis, measles and infant mortality. In an effort to increase the health awareness of native people, the Medical Services Branch has a health officer appointed to the Council for Yukon Indians, while in NWT it is helping native northerners prepare for employment with the branch. The promotion of health awareness has been furthered by the establishment of a health resource centre and library serving professionals, schools, volunteer agencies and the public; this institution is funded by NWT Department of Health and Health and Welfare Canada.

Hospital and health care insurance in both Yukon and NWT are the responsibility of the territorial departments of health. The NWT Department of Health administers the Territorial Hospital Insurance Services and the Health Care Plan, which provide hospital and medical care to registered residents.

Yukon Hospital Insurance Services and the Yukon Health Care Insurance Plan are the responsibility of the Health Services Branch of the Yukon Department of Health and Human Resources. These plans provide insured services to residents, without geographic restriction. Medically necessary transportation expenses are paid for residents of Yukon from the point of referral to appropriate treatment centres in Yukon, Vancouver or Edmonton. Supplementary benefits are also available for cancer and psychiatric patients, and a Pharmacare program for senior citizens has been introduced.

12.6 Social Services

12.6.1 Responsibilities

In general, social services are the responsibility of the territorial governments to the same extent as in the provinces.

Funds are provided by the federal government under the Canada Assistance Plan to cover 50 per cent of the costs of public assistance and welfare services expenditures.

The federal government also funds Family Allowances and Old Age Security, and operates the contributory Canada Pension Plan.

The NWT Department of Social Services operates a number of programs which place emphasis on community involvement. The NWT Alcohol and Drug Coordinating Council provides funds for projects proposed by the communities, operates training sessions and regional conferences and provides in-service training for social service workers. The department continues to seek alternatives to incarceration of offenders, using such methods as probation and community service orders. The regional government also has responsibility for child welfare, financial assistance to the needy and services to the aged and handicapped.

In Yukon, social services are the responsibility of the Department of Health and Human Resources. The programs provided by the department include the following:

Services for children and families

A number of services for children are delivered by the Community and Family Services Branch, as opposed to the Community and Family Services Division. Services for children in care are delivered by the Placement and Support Services Unit, as opposed to the Placement and Support Services Division.

Financial assistance is available through the Day Care Subsidy Program to working parents whose incomes fall within the lower end of the salary spectrum.

Youth services are provided to young offenders before the courts or on probation by the Youth Services Unit.

Services for seniors

Pioneer Utility Grant: an annual grant of $360 is available to Yukon seniors who live in their own homes, owned or rented, without government subsidy.

Counselling and community services: a wide range of personal and financial counselling services is offered, as well as information about the range of both Yukon and federal government programs available to seniors.

Encouragement and support are provided in the development of community senior citizens' programs such as the Klondike Senior Citizens Association in Dawson, the Golden Age Society in Whitehorse and the Seniors Information Centre in Whitehorse which is operated by the Yukon Council on Aging.

Transportation services

The department also cooperates with the Whitehorse Transit System in offering a specialized dial-a-ride transportation system within Whitehorse for senior citizens and the disabled who may have difficulty using the regular transit system.

Alcohol and drug services

Yukon Alcohol and Drug Services Division manages and coordinates programs for the prevention and treatment of alcohol and drug problems.

Treatment programs include out-patient counselling, group therapy, assessments, referrals, follow-up and consultation for all Yukoners. Prevention programs focus on public awareness campaigns regarding the use and abuse of alcohol and other drugs.

Rural services programs involve community workers in education and awareness campaigns, training, consultation and community development, counselling and referrals for Yukoners of all ages.

The Employee Assistance Program assists employers in dealing effectively with an employee who has a problem with alcohol or drugs through the development of policies and training seminars, and suggests effective methods of confidential referrals to alcohol and drug counsellors.

Vocational rehabilitation services

Services include comprehensive assessments plus social, medical and vocational counselling, medical rehabilitation, prosthetic and orthotic services, training allowances, tuition and supplies, transportation and on-the-job training arrangements.

Community Preventive Services are directed toward meeting community service needs in all service areas through the Community and Family Services Branch working cooperatively with communities, agencies, organizations and individuals.

Field Services provides community and family services and services to seniors throughout rural Yukon communities.

12.6.2 Social Service Facilities

Both territorial governments operate a broad range of receiving and group homes and offer accommodation to senior citizens. In Yukon, there are four child welfare group homes and a receiving home in Whitehorse and a combined group home/ receiving home in Watson Lake. In addition, there are two youth service facilities in Whitehorse serving delinquents and troubled adolescents.

In NWT, there are four children's receiving homes; group homes provide continuing care in Yellowknife, Inuvik, Fort Smith, Hay River and Cambridge Bay. There are senior citizen homes in Yellowknife, Hay River, Fort Providence and Aklavik. A detoxification centre in Yellowknife provides rehabilitation assistance to those suffering from alcohol or drug addiction.

In Yukon, day care centres and family day homes are available. Licensed centres or day homes meeting established standards for health and medical, nutrition, safety and program activities and physical condition are subsidized under the Day Care Subsidy Program.

There are two senior citizens' lodges. The Norman Macaulay Lodge in Whitehorse, with a 50-bed capacity, provides care ranging from fully supervised personal care to accommodation for the self-sufficient; meal service and limited day care are also available. The Alexander McDonald Lodge in Dawson offers all these services except fully supervised personal care.

The Alcohol and Drug Services program operates a detoxification centre in Whitehorse and funds a privately operated residential treatment centre.

Funds are provided to the Yukon Family Services Association for family counselling and education programs, to the Child Development Centre, which provides services to children with special learning disabilities, to the Rehabilitation Centre, to the Yukon Women's Transition Home, and to the Crossroads Alcohol Treatment Centre.

12.6.3 Problems

Overindulgence in and abuse of alcohol is, if not the most serious problem in the North, certainly the most obvious manifestation of social difficulties.

One of the ways in which the communities are responding is at the local option level. In NWT, numerous communities have decided to prohibit the importation of alcohol. Others act by controlling each importation, and permit or refuse depending upon the performance record of the individual seeking to import. The new Liquor Ordinance in NWT increased the allowable size of the liquor licensing board from five members to nine members, in order to permit more regional representation. The board also will become subject to policy guidelines issued from time to time by the Executive Committee.

The ordinance provides for a continuation of the "local option" system in NWT and gives a statutory base to other systems of liquor control which have been adopted by communities throughout the Territories. Such systems include an unrestricted system, restricted hours for licenced premises, restricted quantities, a committee sytem in which a locally-elected alcohol education committee decides who can buy liquor, and prohibition.

The new ordinance allows inspectors to suspend liquor licences for up to 48 hours pending a board hearing, provides more protection for licencees and gives the board power to levy a fine of up to $5,000 and suspend a licence until the fine is paid.

In order to discourage impulse purchases of liquor, restrictions were placed on off-premises beer sales and provisions were included which could delay delivery of liquor orders for up to 24 hours after the order was placed.

Unemployment may be the basic problem which underlies much of the overuse of alcohol, and is more serious in the larger centres. In smaller communities, activities such as the hauling of water and collection of wastes are labour-intensive and these, together with hunting and trapping provide local employment opportunities.

What was formerly a serious social problem — the lack of leadership following the bringing together of small family groups into larger settlements — has been overcome as new leadership skills have been acquired. It is possible that present difficulties will diminish as the social structure continues to evolve.

12.7 Educational Facilities

12.7.1 Schools — Location, Grades, Enrollment

The range of educational opportunities in both Yukon and Northwest Territories is constantly being broadened. All but the very smallest communities now have schools for the lower grades, and grade levels are being raised as rapidly as possible to reduce the number of students who must leave home for schooling.

In Northwest Territories, there are now ten high schools with 1,350 students enrolled. In March 1984, the minister of education authorized the issuing of a Northwest Territories high school graduation certificate. This certificate is granted to NWT students who meet NWT graduation requirements.

Because NWT high schools follow the Alberta program of studies and credits are awarded by the province, territorial grade 12 students must write the Alberta provincial high school diploma examinations to qualify for an Alberta diploma.

Northwest Territories Arctic College, with campuses at Fort Smith and Frobisher Bay, offers academic upgrading (grades 7-12) and apprenticeship and vocational programs. As well, there are two-year diploma courses in teacher education, public and business administration, secretarial services, social services and renewable resources. A certified nursing assistant program is available at the Yellowknife programming centre of the college. All courses are designed for the needs of northern students.

In Yukon, there are 26 schools, with at least one in every community. Total enrollment in these schools (kindergarten to grade 12) was 4500 in 1985-86. The total number of teachers was 309. Regional high schools have been established within reasonable distances of the communities.

Yukon College is the only post-secondary institution in Yukon. As a community college, Yukon College offers programming varying from adult academic upgrading through trades and technical courses to multi-year programming in business administration and university transfer. Program delivery varies from part- to full-time and from centrally delivered to mobile instruction. Learning centres are located in several rural communities and offer courses on a part- and full-time basis. Approximately 2,300 students are involved in these programs.

12.7.2 Programs

At present the major emphasis is on the development of a northern curriculum and the use of the native northern languages in teaching.

In many schools in the NWT teaching in the first three grades is in Inuktitut, and textbooks have also been prepared in some of the Dene languages. An important aspect of this "northernization" has been the development of native northern teachers through teacher education programs at Frobisher Bay and Fort Smith. Core programming has been completed in English, mathematics, science and social studies for grades 1 to 9, as well as for adult education at the basic and intermediate levels. Testing methods and exercises for special and remedial education are also being developed.

There were dramatic increases in the number of students enrolled in the Eastern Arctic teacher education program. Over 100 people are being trained in either the field-based program or on campus in Frobisher Bay. It is predicted that in three years 50 per cent of the teaching force in the eastern Arctic will be made up of Inuit teachers.

Post-secondary education at institutions in the south is made available to high school graduates through financial assistance provided by the territorial education departments.

In Yukon, native language, culture and life skills such as trapping, are taught in several schools. A native language instructor course at Yukon College supports the further development of the native language courses. Whitehorse students also have access to a French immersion program from kindergarten through to grade 12 on a continuous progress basis.

Yukon students may also apply for financial assistance to continue with their education in post-secondary institutions. This assistance is available in the form of Yukon grants or a certificate of eligibility for a Canada student loan. About 350 students receive a Yukon post-secondary education grant annually, and approximately 300 students were certified as eligible for a Canada Student Loan in 1985-86.

12.7.3 Vocational Training

Arctic College in NWT offers many vocational and apprenticeship programs, including carpentry, mechanics, welding, plumbing, electronics and telecommunications, housing maintenance, food services, small business management and community services programs. Thebacha Campus in Fort Smith provides many of these programs through an extension division. Iqaluit Campus (1984) and Inuvik Campus (1986) offer courses in teacher education, recreational leadership, upgrading, secretarial arts, northern business management and resources management.

In 1986, 180 journeymen received certification through the Tradesman's Qualification route; 95 apprentices received journeyman certification upon completion of their apprenticeship courses and 52 received interprovincial red seal standards. There were 350 students in the apprenticeship program in 1986-87.

12.8 Employment and Working Conditions

12.8.1 General

Unemployment statistics for the North are quite limited and do not distinguish between native and non-native residents. Alternately, ethnicity in the income-producing sectors of the northern economy can be identified because employment conditions differ for the native and non-native population. This is due in part to the fact, common to all parts of Canada, that there are relatively few employment opportunities for unskilled workers; many native people fall into this category. The northern native population has significantly lower levels of education and skills; this is related to a number of factors, including cultural differences and difficulty of access to schooling. In addition, there are limited wage-earning opportunities overall.

Outside the larger centres, and most particularly at the small or hamlet level settlement, there is much less true unemployment because many of the traditional activities practiced by the people are both productive and relatively labour-intensive. The activities of those persons engaged in traditional pursuits on a full- or part-time basis are often not included in analyses of the labour force because they are not seen as participating directly in the wage economy. Thus, the treatment in this section on labour relates principally to the wage economy of the North. For the role which hunting and trapping play outside this sphere, see Sections 3.6, 3.7 and 7.3.

Table 12-6 shows the estimated size of the population and the labour force in Yukon (1983) and NWT (1984). Table 12-7 shows the number of people employed by industry and region in NWT for 1985. Because this data only represents 1,544 establishments in NWT it does not give the full labour picture. Nevertheless it can be seen that western NWT has more employment opportunities in almost all industrial sectors.

12.8.2 Current Employment and Prospects

As in the rest of Canada, employment in Yukon and NWT fluctuates from year-to-year and season-to-season. With some reservation regarding the strict compatibility of the figures, the most recent data from both NWT and Yukon indicate unemployment rates far above the national average.

Given this, emphasis has been placed on employment opportunities in the oil industry, where approximately 1,000 northerners were employed as of September 1983. Furthermore, the Government of NWT is now involved in a job creation program, the short-term employment program (S.T.E.P.), which is aimed at areas with limited wage employment opportunities. Under the supervision of the regions, this program has resulted in expenditures of $2 million in NWT economy at the community level.

Another employment-related program offered in both territories is the training-on-the-job program. The territorial governments, the trainee and employer contract for practical employment and skill training. There are also several federal initiatives to encourage economic development, and by implication, employment of northern residents, particularly natives. These are dealt with in more detail in section 12.1.

Although figures are not available, it is probable that the percentage of unemployment among the native population is much greater than it is for the non-native population, and that a further imbalance exists between male and female workers, with more females being unemployed.

In Yukon, employment increases from Dec. 1984-Dec. 1985 were noted in forestry (11.3%), the service sector (.4%), communications and public utilities (25.8%), and government (1.1%). There were declines in mining (-21.2%), construction (-23.1%), and transport (-16.2%). All these figures deal with full-time employment only (see Table 12-8).

The impact of mining on the economy of Yukon was the subject of a study by the Economics Planning and Research Unit of the Yukon Territorial Government (YTG). This showed that mining accounted for 15.7 per cent of total employment in 1978, down from 16.7 per cent a year earlier.

Major mines then operating, with a total employment estimated at 992, were the Cyprus Anvil Mining Corp. at Faro, United Keno Hill Mines Ltd. at Keno Hill and Whitehorse Copper Mines Ltd. at Whitehorse. The drop in the percentage of employment in mining in 1978 was the result of the closing of the Clinton Creek Mine. In addition to these relatively large operations there were a number of smaller companies operating which brought the total employment in the mining sector to 1,126.

Employment in this sector had increased as of June 1981 to 1,616, but widespread layoffs in the industry brought about a substantial decline in numbers employed in 1983 (down 41.5% in December 1983 from December 1982). The re-opening of the mine at Faro (Cyprus Anvil) by Curragh Resources in the spring of 1986 is expected to result in a substantial increase in the numbers employed in the mining industry in Yukon.

Labour statistics available from the NWT are not in quite the same form as for Yukon. Table 12-9 shows employment by industrial sector; Table 12-10 shows the distribution by employment classification based on analysis of 1983 income tax returns; and Table 12-11 shows changes in government employment between 1984 and 1985.

Much of the growth of the NWT economy in recent years has been led by the non-renewable resource sectors and by government spending. The recent decline in world oil prices, changes in energy policy, and depressed markets for most metals threaten the non-renewable resource basis for that economy. All of this will likely lead to a reduction in the number of jobs available in the mining and oil and gas industries.

Mining is estimated to account for about one-fifth of the jobs in the two territories. Many of these jobs are now threatened. Pine Point, the largest mine in the North, employing over 500 people, is scheduled to close indefinitely in mid-1987. Because of depressed tungsten prices, the Con tungsten mine is likely to suspend operations at some time in the near future; this mine employs 210 people. The mine at Nanisivik will remain open for perhaps four more years, the life of existing reserves. Finally, Cominco is planning to sell its Con gold mine in Yellowknife. At this time, it is uncertain whether the new owner will continue to operate the mine at current levels. All of these developments will have significant impacts on the labour force.

In the oil and gas industry, although there is evidence that the Beaufort/Delta region may contain substantial reserves, development of these reserves is unlikely at this time due to the drop in world oil prices. With the exploration phases coming to a close, there will likely be a drastic reduction in the labour force until the 1990s — the date now slated for development.

Given the above, it is becoming increasingly apparent that in the coming years economic development in both territories, particularly the NWT, may have to be re-oriented, placing more emphasis on the renewable resource sector of the economy, including tourist and park facilities, and renewable resource development at the community level.

12.8.3 Wages, Salaries and Allowances

The average annual income for all employees has, for some time, been higher in Yukon and NWT than in Canada as a whole. Figures from Statistics Canada show that the ratio has probably increased if anything, as indicated in Table 12-12.

These figures give a misleading impression of high wages in both territories. While some wage rates do reflect the higher costs of living, the data in the table are from firms employing 20 or more persons. Thus, smaller enterprises are not represented and these constitute a much larger fraction of the total labour force in the North. It must also be remembered that both NWT and Yukon have unemployment rates far higher than the national average.

12.8.4 Labour Legislation

The Canada Labour Code applies to Yukon and the NWT. In addition, corresponding to provincial labour legislation elsewhere in Canada, there are applicable territorial ordinances. Four of these are summarized very briefly below. Other ordinances with some labour content can be found in the Revised Ordinances of Northwest Territories and Revised Ordinances of Yukon.

12.8.4.1 Labour Standards Ordinance 1967 N.W.T.

This is an ordinance to provide for labour standards in NWT. It specifies hours of work, minimum wages, annual vacations and other holidays, and provides for the issuance of regulations to carry out the provisions of the ordinance.

12.8.4.2 Fair Practices Ordinance 1966 (NWT)

This is an ordinance to prevent discrimination in regard to accommodation and employment and in regard to membership in trade unions by reason of race, creed, colour, sex, marital status, nationality, ancestry, place of origin, handicap, age, family or conviction for which pardon has been granted.

It specifically enjoins against discrimination in employment or accommodation on any of the grounds listed, requires equal pay for males and females for substantially similar work and establishes a procedure for hearing and rendering decisions with respect to complaints of unfair practices.

Of particular interest, considering the large native population in NWT, is the provision in the ordinance for affirmative action programs.

12.8.4.3 Labour Standards Ordinance 1968 (Yukon)

This ordinance is similar in content and scope to that summarized above for NWT.

12.8.4.4 Fair Practices Ordinance 1963 (Yukon)

This ordinance is similar in scope and content to that summarized above for NWT.

12.9 Consumer Goods and Services

Because few consumer goods are produced within the territories, these goods must be imported. The remoteness of northern settlements from the sources of supply ensures that living costs in the North will be greater than in southern Canadian communities by an amount approximately equal to the additional transportation and inventory costs.

Food costs in Whitehorse and Yellowknife are estimated to be about 25 per cent greater than at southern supply points. The differential is even larger for the smaller, more remote northern settlements. However, these greater costs have less impact on some persons — primarily native — who follow the traditional hunting and trapping way of life. It is therefore difficult to make valid comparisons between the costs of living in northern and southern communities.

12.9.1 Food

An intensive study[1], undertaken in 1981, found that Whitehorse food prices were about 18 per cent above those in Vancouver and about 22 per cent above those in Edmonton in June 1981. Freight and inventory costs were the principal factors contributing to the higher prices. No satisfactory explanation could be given for the small residual difference in prices.

The differences between food costs in Whitehorse, Edmonton and Vancouver in June 1985 are expressed in the form of indices in Table 12-13; similar items were priced at each location and the same relative weights were used.

Table 12-14 measures the extent by which the prices of different food items available for purchase in six Yukon communities exceed the prices paid for the same set of items in Whitehorse.

Table 12-15 compares food costs in Yellowknife and Whitehorse with southern Canada in terms of the weekly cost of feeding a family of four.

Food prices in most smaller communities in the NWT are significantly higher than in Yellowknife, as shown in Table 12-16.

12.9.2 Clothing, Furniture — Household Goods and Services

Due to the small and widely distributed population in the North, no retail establishment, even in Whitehorse, Yellowknife or the other relatively large population centres, can afford to carry a very wide selection of durable consumer goods such as furniture and appliances. In major northern centres where there is a high level of disposable income, there is much the same range of articles of everyday purchase — such as food, tobacco and clothing — as in southern Canadian communities of comparable size.

In southern Canada a major shopping centre is usually accessible, without too much inconvenience, to rural households or small communities. This is not normally the case in Yukon and NWT where hundreds of kilometres can separate the smaller from larger places. Often roads are either non-existent or primitive, making travel expensive.

Goods ordered during trips outside or by mail must be shipped by either air freight or parcel post. The cost of shipping is then reflected in a higher retail price. While the lack of selection and the delay cannot be readily reduced to numbers, the relative costs of goods and services can be. These costs are shown in Tables 12-17 and 12-18.

12.9.3 Energy Prices

Some considerations concerning the supply of electricity and petroleum products will be found in Section 12.10; this section will be concerned with price only.

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[1] *Report of the Special Committee on Food Prices, Legislative Assembly Office, Whitehorse. December 1981.*

12.9.3.1 Electricity

Prices in Table 12-19 and Table 12-20 are as supplied by the northern electrical utilities. In NWT, electrical services are provided by the Northern Canada Power Commission (NCPC), the Northland Utilities and Plains Western Gas and Electric Co. (a subsidiary of Inter-City Gas). In Yukon, NCPC and the Yukon Electric Co. are the utilities.

12.9.3.2 Petroleum Products

Most NWT communities are not serviced by private sector distributors of petroleum products. In these communities the GNWT, through its Petroleum Oil and Lubricants Division, acquires, transports, stores and distributes petroleum products. Not all of the costs associated with this service are recovered from the sales of these products; thus an indirect subsidy is provided to such northern communities.

The costs of petroleum in Yukon and the NWT are among the highest in the country. For a comparison with other Canadian cities, see Table 12-21.

12.9.3.3 Hot Water and Steam

District heat as hot water is available from the Frobisher Bay and Inuvik electrical generating plants.

12.10 Utilities

12.10.1 General

The utilities taken for granted in southern Canada are not universally available north of 60a/°N. Although almost every community is supplied with electrical power, only a few have running water and sewage disposal systems.

Where they are available, the cost of providing these utility services is very high, reflecting the northern environment and conditions, although these are rarely paid directly by the end user. Electrical rates for domestic and commercial service are shown in Tables 12-19, 20, 22 and 23.

12.10.2 Electricity

A study[1] of communities of 20 or more persons in both Yukon and NWT in 1980 showed that only six of them, two in Yukon and four in NWT, were without electricity. Most communities (10 in Yukon and 50 in the NWT) are dependent on diesel generators, while seven in the NWT and eight in Yukon are serviced by hydro-generated electric power. The principal supplier of electrical energy in the North is the Northern Canada Power Commission (NCPC). It generates power at five hydroelectric and 46 diesel electric plants.

In addition to NCPC, Yukon Electrical Company Ltd. qenerates a small amount of hydro power at two sites (1.0 MW and .65 MW) close to Whitehorse and Cominco owns and operates a somewhat larger (3.3 MW) site at Bluefish Lake near Yellowknife, which provides power for its mining operations. There is a diesel electric plant owned and operated by the mine at Nanisivik, which distributes power to the townsite, and a similar situation exists at Port Radium. At Sanikiluaq in the Belcher Islands, a generator owned by the territorial government, and in Bathurst Inlet, privately owned equipment, are the only sources of electricity.

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[1] *Renewable Energy in Remote Locations.*
Energy Demand and Resource Base, Report ER 80-10E
Energy, Mines and Resources Canada, October 1980

In Yukon, most consumers receive electrical energy from Yukon Electrical Co., except those in Dawson City, Elsa, Faro and Mayo, where NCPC provides retail service. The situation is different in NWT, where the retail distribution is almost entirely by NCPC; exceptions are Yellowknife, where Plains Western Gas and Electric Co. is the retailer, and Enterprise, Fort Providence, Dory Point and Hay River, where generation and distribution is done by Northland Utilities from its diesel generators. NCPC's retail electrical rates for residential service listed in Table 12-19 are not necessarily based on the total cost of providing electrical energy; commercial and government rates are usually higher. The most recent figures available for the energy charges by NCPC to the GNWT are given in Table 12-22.

12.10.3 Other Utilities

While electricity is generally available, other services are not. In NWT, a very complete listing of all community facilities in 60 locations has been produced[1]. This shows that only 18 or so have water piped to all buildings and in only about seven of these is piped water available to the community generally.

In Yukon, six communities — Dawson City, Faro, Haines Junction, Mayo, Watson Lake and Whitehorse — have running water and sewer connections. Carmacks has sewer only, with residents dependent upon their own wells for water; Teslin uses sewage holding tanks with pump-out service.

Sewage systems are rare, due to the difficulty of keeping sewers from freezing. In some communities a utilidor system, which encloses and insulates both water supply and sewage lines, is used; in a few others the lines are buried. Burial is advantageous in only those locations where there is no permafrost.

Except for those few locations (seven in Yukon, 13 in the NWT) with piped sewage disposal, sewage is held in a holding tank or, more generally, in plastic bags. Only rarely can septic tank disposal be used.

Removal of garbage is easily added to the collection of sewage when the latter is bagged. If a more sophisticated sewage system is in place the addition of garbage collection appears to be a relatively minor item, so that this service is quite generally available.

District heat is provided at a few places in the form of waste heat that is a by-product of the generation of electricity from diesel plants. At present, NCPC operates major heat recovery systems at Dawson City in Yukon and at Cambridge Bay, Lac la Martre, Coppermine, Fort Simpson, Pelly Bay, Igloolik and Rankin Inlet in NWT.

12.10.4 Fuel Supplies

There is local production of gasoline and oil at the refinery at Norman Wells, and this provides for some of the needs in the Mackenzie Valley, with the remainder coming by truck to Hay River for barge shipment or over the Dempster Highway to the Delta area.

The Pointed Mountain Gas Field in NWT produces gas for transportation via pipeline to a treatment plant at Fort Nelson, BC, with only a very small quantity being used for the generation of electricity for on-site field operations.

A small-diameter pipeline terminating at Whitehorse delivers petroleum supplies to Yukon from tidewater at Skagway, Alaska. These supplies come from BC and are shipped to Skagway by sea.

Most of the eastern Arctic receives its fuel and diesel oil by tanker from Montreal or Churchill. Some remote points are served by air.

12.10.5 Federal Energy Subsidies

There are three federal energy subsidies in the North. Since 1978 an electrical subsidy has evened the cost of the first 700 kWh per month for non-government residences in remote communities with the price charged in the territorial capitals. In April 1980, a similar monthly subsidy for up to 1,000 kWh was extended to small businesses. At the same time, the federal government began a home heating oil subsidy that covered up to 6,819 litres (1,500 gallons) a year for residences outside the territorial capitals. As with the electrical subsidies, the Whitehorse and Yellowknife costs determine the amount of this subsidy.

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[1] *NWT Data Book, op. cit.*

For a complete summary of the services available to each community in NWT, see: Community Water and Sanitation Services,Northwest Territories, November 1981. Water and Sanitation Section, GNWT.

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Table 12-1

Approximate number of establishments listed by industry group and class for the Yukon and NWT, 1985*

Group	# of establishments NWT	# of establishments Yukon
All Industries	1,748	1,551
Agriculture & Forestry	6	31
Mining, Oil & Gas	36	47
Manufacturing	59	59
Construction	177	165
Transportation & Storage	167	107
Communication & Other Utilities	42	19
Wholesale Trade	124	43
Retail Trade	317	261
Finance & Insurance	22	16
Real Estate & Insurance	41	25
Services to Business	130	130
Government Services	118	74
Educational Services	67	24
Health & Social Services	46	39
Accommodation, Food & Beverages	151	154
Amusement & Recreation	29	76
Personal & Household Services	32	44
Membership Organizations	88	118
Other Services	96	119

* Industry counts are based on *main* business activity reported in the Business Directories of the individual territories.

Source: **1985/86 Yukon Business Directory.** Dept. of Economic Development: Mines and Small Business. YTG. 1986

1985 Northwest Territories Business Directory Statistical Report. Bureau of Statistics. GNWT. May 1986

Table 12-2

Number of companies by industry sector in Yukon as of December 1985

Sector	No. of companies*
Communications and Utilities	13
Mining	189
Forestry	29
Construction	185
Service	1,248
Transportation	79
Total	1,739

Source: Yukon Economic Review, Fourth Quarter, 1985.

Table 12-3

Distribution of number of establishments by employment size for Yukon and NWT, June 1985

No. of Employees	No. of Establishments	
	Yukon	*NWT*
1-4	582	626
5-9	183	284
10-19	107	172
20-49	45	115
50-99	14	26
100-199	2	10
200-499	3	3
500	1	2
Unknown	72	109

Source: Business Register Array, Business Register Division, Statistics Canada.

Note: This table excludes establishments with no permanent employees.

Table 12-4

Employees by industry Yukon Territory, 1983-86*

Industry Group	1986 Feb.	1985 Jan.	1984 June	1983 June
Mines, Quarries & Oil Wells	N/A	300	500	400
Manufacturing	N/A	100	200	100
Construction	N/A	N/A	N/A	N/A
Total Goods Producing	500	600	1100	800
Transportation, Communications & Utilities	1500	1300	1500	1300
Trade	1100	1000	1200	1000
Community, Business & Personal Services	2400	2200	3000	2500
Total Service Producing	7300	6800	8000	7200
Industrial Aggregate	7800	7400	9000	8000
Public Administration	2100	N/A	N/A	N/A

* All numbers were rounded to the nearest hundredth by Statistics Canada. Not all the industrial labour force data is represented here. Agriculture, fishing, trapping, military services, religious organizations and household services are not included. Furthermore, Statistics Canada's figures are significantly lower than those of the Yukon Government. It is likely that actual labour force numbers lie between these two sources.

Source: Statistics Canada, Survey of Employment, Payrolls and Hours — Catalogue 72-002.

Table 12-5

Employees by Industry, Northwest Territories, 1983-86

Industry Group	1986 Feb*	1985 Jan	1984 Oct-Dec Average	Employees 1984 Jul-Sep Average	1984 Jan	1983 Oct-Dec Average
Mines, Quarries, & Oil Wells	N/A	2447	2878	3396	2770	3046
Manufacturing	N/A	306	371	436	301	374
Construction	N/A	X	X	X	X	X
Total Goods-Producing	3500	3494	4077	4791	3601	4044
Transportation, Communication & Utilities	1700	1875	1960	2107	1521	1702
Trade	2200	2162	2030	2019	1773	1806
Finance, Insurance & Real Estate	600	654	572	567	530	547
Community, Business, & Personal Services	5100	438	4458	4369	4378	4458
Public Administration	4600	4715	4782	4835	4502	4634
Total Service-Producing	*14100*	*13805*	*13801*	*13897*	*12705*	*13148*
Industrial Aggregate	17600	17298	17879	18688	16306	17192

* numbers here are rounded to the nearest hundredth by Statistics Canada

X - confidential

N/A - not available

Source: Statistics Canada, Survey of Employment, Payrolls and Hours — Catalogue 72-002.

Table 12-6

Population and labour force, Yukon and NWT, 1981-84

Yukon	1981	(Dec) 1983	(Dec) 1984
Total population	23,153	23,378	22,800
Labour force	12,960	11,133	12,532
Employed	11,980	9,336	10,913
Unemployed	985	1,797	1,619
Unemployment rate	7.6%	16.1%	14.8%
NWT			
Total population	45,741	49,138	50,500
Labour force	19,180		21,309
Employed	17,615		17,775
Unemployed	1,565		3,534
Unemployment rate	8.2%		17%

Sources: Census of Canada, 1981, (Statistics Canada); *Yukon Economic Review*, 1984, 4th quarter (YTG); *Yukon Economic Review*, 1985, 4th quarter (YTG); *Statistics Quarterly*, Vol. 7, no. 1 (GNWT); Population estimates, Statistics Canada, Cat. no. 91-001; *Labour Force Survey*, December 1984 (GNWT — preliminary figures).

Table 12–7
Reported employment, by Industry and Region
Northwest Territories, 1984–1985
(Employee Counts Based on Main Business Activity Reported)*

	Northwest Territories		Baffin Region		Keewatin Region		Kitikmeot Region		Inuvik Region		Fort Smith Region	
	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
All Industries	18 900	100	2 544	100	1087	100	842	100	5 000	100	9 427	100
Agriculture & Forestry	12	–	–	–	–	–	–	–	7	–	5	–
Mining, Oil & Gas	4 419	23	275	11	242	22	419	50	1 698	34	1 785	19
Manufacturing	623	3	77	3	14	1	37	4	242	5	251	3
Construction	1 974	10	385	15	83	8	18	2	606	12	882	9
Transportation & Storage	2 156	11	246	10	74	7	48	6	697	14	1 091	12
Communication & Other Utilities	623	3	162	6	15	1	1	–	149	3	296	3
Wholesale Trade	755	4	114	4	38	3	31	4	132	3	440	5
Retail Trade	2 016	11	352	14	210	19	54	6	290	6	1 110	12
Finance & Insurance	199	1	13	1	8	1	–	–	12	1	146	2
Real Estate & Insurance	171	1	–	–	–	–	–	–	15	–	156	2
Services to Business	961	5	42	2	40	4	2	–	99	4	678	7
Government Services	1 025	5	314	12	175	16	104	12	104	2	328	3
Educational Services	354	2	84	3	25	2	4	–	2	–	239	3
Health & Social Services	746	4	134	5	37	3	–	–	39	1	536	6
Accomodation, Food & Beverages	1 760	9	217	9	79	7	67	8	444	9	953	10
Amusement & Recreation	140	1	35	1	1	–	–	–	8	–	96	1
Personal & Household Services	108	1	2	–	–	–	–	–	34	1	72	1
Membership Organizations	340	2	48	2	35	3	46	5	72	1	139	1
Other Services	518	3	44	2	11	1	11	1	230	5	222	2

*These figures are based on the 1,544 establishments who reported employment information (88% of these establishments were included in the 1985 Business Directory). All information has been categorized under the main business activity of a company and therefore does not represent all activities in which a business may be involved.
Source: 1985 Northwest Territories Business Directory, Statistical Report, GNWT, May 1986.

Table 12-8

Average full-time employment in Yukon by industry sector for 1982-85 (December)

	Total	Mining	Forestry	Construction	Service	Transportation	Communication and Utilities	Gov't	Other
1985	9527	505	47	451	3954	309	521	3677	65
1984	9686	640	42	586	3938	368	414	3637	61
1983	8906	678	19	683	3079	436	403	3547	62
1982	9877	1080	26	582	3051	678	489	3896	76

Source: Yukon Statistical Review Fourth Quarter 1985.

Note: Trappers included in category "Other" were eliminated from full-time classification in second quarter, 1982.

Table 12-9

Employment by industry sector, NWT, 1985

	Dec	Nov	Oct
			(no.)
Employees	17,735	17,793	18,585
Mining, Oil & Gas	2,528	2,951	3,154
Manufacturing	334	368	408
Transportation & Communication	1,681	1,713	2,042
Trade	2,186	2,212	2,268
Finance & Insurance	582	584	545
Community & Business Services	5,083	5,153	4,739
Public Administration	4,602	4,631	4,670

Source: Statistics Quarterly, Vol. 8, No. 1 and Vol. 7, No. 1 (GNWT)
Note: December figures are preliminary

Table 12-10

Average personal income by industry sector in NWT, 1983

Employment Classification	Number of Returns	Average Income
All Classifications	25,925	$18,403
Employees	20,764	21,448
Business	9,048	19,254
Institutional	1,894	16,940
Teachers	238	36,256
Federal	2,217	28,230
Territorial	3,854	27,750
Municipal	1,341	17,120
Armed Forces	191	27,518
Fed. Crown Corp.	590	30,827
Terr. Crown Corp.	120	29,858
Unclassified	1,271	8,576
Professionals	166	35,169
Business Proprietors	404	14,545
Investors	506	13,443
Pensioners	477	7,023
Unclassified	3,571	2,656
Other	37	11,135

Source: Statistics Quarterly, Vol. 8, No. 1, March 1986 (GNWT)

Table 12-11

Government: employment and payroll in the NWT, including changes from 1984 to 1985

Government	1985			Year-to-date		
Employment	Dec	Nov	Oct	1985	1984	Change
		($'000)			($'000)	(%)
Payroll	20 021	27 825	21 420	246 778	228 779	7.9
Federal	5 046	6 826	5 091	68 797	73 192	-6.0
Territorial	13 259	19 294	14 638	158 385	137 463	15.2
Municipal	1 716	1 705	1 691	19 596	18 124	8.1
		(no)			(monthly avg.)	(%)
Employees	7 589	7 599	7 635	7 356	7 164	2.7
Federal	2 410	2 407	2 423	2 566	2 793	-8.1
Territorial	4 253	4 286	4 274	3 885	3 538	9.8
Municipal	926	906	938	905	833	8.7

(Federal Payroll does not include overtime and retroactive pay.)
Source: Statistics Quarterly, Vol. 8, No. 1, March 1986 (GNWT)

Table 12-12

Average weekly earnings (including overtime) for the industrial aggregate, Canada, Yukon and the NWT

	Jan 1985	July 1984	Jan 1984
Canada	411.53	404.99	401.38
Yukon	493.54	484.39	471.26
NWT	561.43	570.68	546.52

Source: Statistics Canada Cat. No. 72-002

Table 12-13

Food price comparisons between Whitehorse and both Edmonton and Vancouver in June 1985

	Edmonton =100	Vancouver =100
Food	129.6	124.5
Food for home consumption	122.0	124.3
Restaurant meals	150.7	124.8

Source: Yukon Statistical Review, April 1986, p.35

Table 12-14

Cost of food basket December 1985, by community

Community	$
Burwash Landing	83.45
Carcross	77.45
Carmacks	77.01
Dawson City	72.54
Destruction Bay	86.66
Faro	69.32
Haines Junction	67.49
Mayo	74.15
Old Crow	99.80
Ross River	77.84
Teslin	65.44
Watson Lake	68.93
Whitehorse	68.01

Source: Bureau of Statistics, Yukon Statistical Review, April 1986, p 33

Table 12-15

Weekly food cost (nutritious diet for a family of four) as of July 1986

	Cost in Dollars
Yellowknife	139.23
Whitehorse	135.37
Southern Canada (average)	103.93
Edmonton	105.62
Vancouver	105.43

Source: Agriculture Canada, Food Markets Analysis Division

Table 12-16

Food price indexes by community and region, NWT, June 1985

	Price Index (Yellowknife = 100)		Price Index (Yellowknife = 100)
Baffin		*Inuvik*	
Arctic Bay	167	Aklavik	147
Broughton Island	153	Arctic Red River	128
Cape Dorset	167	Colville Lake	150
Clyde River	166	Fort Franklin	149
Frobisher Bay	155	Fort Good Hope	145
Grise Fiord	175	Fort McPherson	120
Hall Beach	147	Fort Norman	161
Igloolik	166	Inuvik	129
Lake Harbour	165	Norman Wells	160
Nanisivik	163	Paulatuk	163
Pond Inlet	162	Sachs Harbour	183
Resolute	163	Tuktoyaktuk	125
Sanikiluaq	152		
Keewatin		*Fort Smith*	
Baker Lake	165	Fort Liard	111
Chesterfield Inlet	168	Fort Providence	101
Coral Harbour	180	Fort Resolution	103
Eskimo Point	132	Fort Simpson	103
Rankin Inlet	155	Fort Smith	97
Repulse Bay	183	Hay River	96
Whale Cove	162	Jean Marie River	139
		Nahanni Butte	141
		Pine Point	96
Kitikmeot		Rae-Edzo	106
		Snowdrift	169
Cambridge Bay	148	Wrigley	133
Coppermine	146	Yellowknife	100
Gjoa Haven	201		
Holman	176		
Pelly Bay	200		
Spence Bay	203		

Source: Government of NWT, Food Price Survey 1985

Table 12-17

Index of prices for consumer goods and services at Whitehorse, Yukon, relative to Edmonton or Vancouver in June 1985

	Whitehorse	
Item	Edmonton = 100	Vancouver = 100
All items	121.6	113.7
Food	129.6	124.5
Consumed at home	122.6	124.3
Restaurant meals	150.7	124.8
Housing	125.3	119.4
Shelter	132.4	123.3
Operation	109.9	114.5
Furnishings	117.6	110.7
Clothing	116.0	112.6
Transportation	122.7	103.8
Private	120.7	100.8
Public	133.5	120.8
Health and personal care	118.1	105.7
Health	118.2	107.8
Personal care	118.1	104.4
Recreation, reading & education	105.0	106.5
Recreation	110.1	110.3
Reading	83.6	82.6
Education	87.3	99.6
Tobacco and alcohol	112.1	99.8
Tobacco	80.8	91.8
Alcohol	125.4	103.3

Source: Spatial Price Survey, June 1985 Yukon Bureau of Statistics, p.35

Table 12-18

Index of prices for consumer goods and services at Yellowknife, NWT, relative to Edmonton in June 1985

	Index Edmonton = 100
All items	135.6
Food	127.8
Housing	165.3
Clothing	119.5
Transportation	121.7
Health and personal care	125.2
Recreation, reading and education	121.3
Tobacco and alcohol	111.9

Sources: Spatial Price Indexes, p.6 Yellowknife — Edmonton June 1985 Bureau of Statistics Government of the Northwest Territories

Table 12-19

NCPC monthly electrical rates, residential consumers, NWT and Yukon, effective April 1986 for NWT; July 1986 for Yukon (in cents per kWh)

Community	Non-government Service first 300 kWh	Non-government Service over 300 kWh	Government Service first 300 kWh	Government Service over 300 kWh
NWT:				
Aklavik	17.35	31.40	38.26	38.26
Arctic Bay	21.41	35.21	47.55	47.55
Arctic Red River	29.20	47.99	70.00	70.00
Baker Lake	21.52	38.81	42.30	42.30
Broughton Island	29.44	48.47	61.49	61.49
Cambridge Bay	19.65	35.20	38.84	38.84
Cape Dorset	27.93	45.22	48.22	48.22
Chesterfield Inlet	24.87	42.04	62.48	62.48
Clyde	14.50	26.82	41.32	41.32
Coppermine	18.18	34.85	40.28	40.28
Coral Harbour	19.40	33.08	39.26	39.26
Eskimo Point	22.76	38.32	42.75	42.75
Fort Franklin	16.35	30.65	40.56	40.56
Fort Good Hope	18.55	34.33	48.14	48.14
Fort Liard	20.10	35.65	57.03	57.03
Fort McPherson	15.88	29.07	37.09	37.09
Fort Norman	21.17	35.35	40.54	40.54
Fort Resolution	6.93	7.67	11.14	11.14
Fort Simpson	16.18	22.41	27.39	27.39
Fort Smith	9.68	7.38		
Frobisher Bay	22.11	30.20	32.17	32.17
Gjoa Haven	19.27	33.46	49.47	49.47
Grise Fiord	19.84	33.52	46.81	46.81
Hall Beach	15.65	31.71	54.35	54.35
Holman Island	22.56	38.47	61.76	61.76
Igloolik	15.04	30.72	36.46	36.46
Inuvik	17.63	23.23	24.51	24.51
Jean Marie River	23.74	42.03	66.54	66.54
Lac la Martre	19.99	35.90	67.92	67.92
Lake Harbour	30.54	49.57	60.19	60.19
Nahanni Butte	27.91	45.07	70.00	70.00
Norman Wells	15.05	23.37	24.15	24.15
Pangnirtung	25.43	40.10	46.82	46.82
Paulatuk	24.01	42.78	70.00	70.00
Pelly Bay	35.74	57.38	70.00	70.00
Pine Point	5.20	4.41	—	—
Pond Inlet	18.82	30.50	36.39	36.39
Rae Lake	22.21	38.25	65.68	65.68
Rankin Inlet	20.19	35.75	39.36	39.36
Repulse Bay	17.94	29.62	39.96	39.96
Resolute	21.76	32.97	33.10	33.10
Sachs Harbour	21.02	37.31	52.03	52.03
Salt River	8.76	9.64	15.31	11.93
Snowdrift	20.10	29.69	46.25	46.25
Spence Bay	22.13	33.19	47.23	47.23
Tuktoyaktuk	18.47	28.78	35.19	35.19
Whale Cove	22.09	38.11	63.51	63.51
Wrigley	21.26	32.46	48.89	48.89
Yukon:				
Dawson	16.33	21.75		
Faro	7.91	7.91		
Johnson's Crossing	20.25	20.25		
Mayo	7.81	5.66		

Source: NCPC

Table 12-20

Investor-owned utilities, monthly electrical rates, residential consumers, NWT and Yukon, effective April 1986 for NWT; July 1986 for Yukon (in cents per kWh)

NWT

Northland Utilities

Community	first 200 kWh	over 200 kWh
Dory Point	28.931	27.761
Enterprise	24.936	23.766
Fort Providence	24.936	23.766
Hay River	14.401	13.341

Source: Alberta Power Ltd.

Plains Western Gas and Electric Co.

Community	first 75 kWh	over 75 kWh
Yellowknife*	8.96 (Minimum charge)	9.30

*franchise tax of 2.4% per gross kWh
Source: NCPC

Yukon

Community	first 200 kWh	next 300 kWh	over 500 kWh
Beaver Creek	26.2	23.7	18.3
Carcross	14.5	14.4	9.4
Carmacks	14.5	14.4	9.4
Destruction Bay	26.2	23.7	18.3
Haines Junction	15.6	14.5	11.2
Keno City	8.9	8.5	7.9
Lower Post	26.2	23.7	18.3
Marsh Lake	14.5	14.4	9.4
Old Crow	38.4	38.4	38.4
Pelly Crossing	26.2	23.7	18.3
Ross River	22.2	20.0	15.5
Stuart Crossing	26.2	23.7	18.3
Swift River	26.2	23.7	18.3
Tagish	14.5	14.4	9.4
Teslin	26.2	23.7	18.3
Upper Liard	26.2	23.7	18.3
Watson Lake	18.1	16.4	14.6
Whitehorse	7.5	7.0	6.6

Source: Yukon Electric Company
Note: If utility operating costs increase, customers may be subject to extra charges.

Table 12-21

Average petroleum retail prices, March 1986

	Gasoline (c/litre)				Home Heating Oil
	Regular Unleaded		Regular Leaded		
	self service	full service	self service	full service	
Whitehorse*	—	56.1	—	54.0	40.8
Yellowknife*	—	59.0	—	56.9	41.4
St. John's	62.6	63.9	59.5	61.2	40.8
Charlottetown	57.9	59.0	55.5	56.9	37.2
Halifax	—	56.7	—	54.9	36.8
Saint John	—	60.4	—	57.9	38.8
Quebec	60.3	60.6	57.0	57.4	38.2
Montreal	59.3	59.7	56.0	56.4	36.8
Ottawa	52.8	53.2	49.8	50.0	38.3
Toronto	49.7	50.2	46.6	47.2	37.2
Thunder Bay	52.8	53.1	49.8	49.9	38.8
Winnipeg	52.6	53.0	51.4	51.8	38.1
Regina	43.4	44.1	41.3	41.3	35.7
Saskatoon	47.1	47.5	45.0	45.0	34.1
Edmonton	43.8	44.2	41.7	41.7	—
Calgary	45.9	46.2	43.8	43.8	—
Vancouver	55.0	55.1	52.2	52.1	36.8

Source: Statistics Canada, Consumer Prices Section and Cat. No. 62-010 Jan. — Mar. 1986
* Energy, Mines and Resources, Oil Pricing and Marketing

Table 12-22

NCPC monthly electrical rates, commercial consumers, NWT and Yukon, effective April 1986 for NWT; July 1986 for Yukon (in cents per kWh)

Table 12-22 *(continued)*

	Non-Government Service	Government Service
NWT		
Aklavik	34.67	38.26
Arctic Bay	33.90	47.26
Arctic Red River	46.67	70.00
Baker Lake	32.80	42.30
Broughton Island	50.92	61.49
Cambridge Bay	36.74	38.84
Cape Dorset	39.77	48.22
Chesterfield Inlet	51.39	62.48
Clyde	27.69	41.95
Coppermine	32.68	40.28
Coral Harbour	36.03	40.14
Eskimo Point	33.79	42.75
Fort Franklin	34.17	38.22
Fort Good Hope	38.21	42.81
Fort Liard	38.08	57.03
Fort McPherson	28.50	37.09
Fort Norman	33.54	40.55
Fort Resolution	13.06	14.76
Fort Simpson	31.51	31.51
Fort Smith	15.58 first 100 kWh 10.63 next 400 kWh 6.52 over 500 kWh	15.58 first 100 kWh 10.63 next 400 kWh 6.52 over 500 kWh
Frobisher Bay	29.60	32.60
Gjoa Haven	38.91	49.47
Grise Fiord	32.11	49.99
Hall Beach	35.26	54.35
Holman Island	41.35	61.76
Igloolik	33.76	36.46
Inuvik	23.48	24.51
Jean Marie River	42.97	70.00
Lac la Martre	39.74	67.53
Lake Harbour	42.77	60.19
Nahanni Butte	44.69	70.00
Norman Wells	24.59	24.42
Pangnirtung	40.09	42.22
Paulatuk	52.50	70.00
Pelly Bay	57.94	70.00
Pine Point	10.52 first 100 kWh 5.88 next 400 kWh 4.53 over 500 kWh	10.50 first 100 kWh 10.63 next 400 kWh 6.52 over 500 kWh
Pond Inlet	29.29	36.39
Rae Lake	34.61	65.68
Rankin Inlet	37.14	39.36
Repulse Bay	31.41	39.96
Resolute	34.37	33.31
Sachs Harbour	41.87	41.87
Salt River	19.28 first 40 kWh 13.24 next 160 kWh	21.20 first 40 kWh 14.48 next 160 kWh

Table 12-22 *(continued)*

	Non-Government Service	Government Service
	10.09 next 200 kWh	11.05 next 200 kWh
	8.58 over 400 kWh	9.41 over 400 kWh
Snowdrift	29.28	45.75
Spence Bay	34.14	48.33
Tuktoyaktuk	30.27	35.19
Whale Cove	41.94	64.97
Wrigley	34.64	50.45
Yukon		
Dawson	26.07	26.07
Faro	14.87 first 40 kWh	14.87 first 40 kWh
	10.58 next 160 kWh	10.58 next 160 kWh
Yukon continued		
Faro		
	8.37 next 200 kWh	8.37 next 200 kWh
	8.05 over 400 kWh	8.05 over 400 kWh
Johnson's Crossing	22.52	22.52
Mayo	14.79 first 40 kWh	14.79 first 40 kWh
	10.14 next 160 kWh	10.14 next 160 kWh
	7.81 next 200 kWh	7.81 next 200 kWh
	5.66 over 400 kWh	5.66 over 400 kWh

Source: NCPC

Table 12-23

Investor-owned utilities, monthly electrical rates, commercial consumers, NWT and Yukon, effective April 1986 for NWT; July 1986 for Yukon (in cents per kWh)

NWT

Northland Utilities

Community	first 200 kWh	next 200 kWh	over 400 kWh
Dory Point	33.391	30.481	29.021
Enterprise	29.596	26.486	25.026
Fort Providence	33.591	30.481	29.021
Hay River	18.031	14.410	14.041

Source: Alberta Power Ltd.

Plain Western Gas and Electric Co.

Community	first 50 kWh	over 50 kWh
Yellowknife*	nil	10.7

* franchise tax of 2.4% per gross kWh
Source: Inter-City Gas

Yukon

Community	first 200 kWh	next 200 kWh	over 400 kWh
Beaver Creek	26.0	23.0	18.3
Carcross	15.7	12.4	9.4
Carmacks	15.7	12.4	9.4
Destruction Bay	26.0	23.0	18.3
Haines Junction	16.5	14.3	11.1
Keno City	12.5	10.0	8.1
Lower Post	26.0	23.0	18.3
Marsh Lake	15.7	12.4	9.4
Old Crow	48.8	48.8	48.8
Pelly Crossing	26.0	23.0	18.3
Ross River	22.2	19.6	15.5
Stuart Crossing	26.0	23.0	18.3
Swift River	26.0	23.0	18.3
Tagish	15.7	12.4	9.4
Teslin	8.9	7.8	6.6
Upper Liard	26.0	23.0	18.3
Watson Lake	22.3	17.9	14.7
Whitehorse	8.9	7.8	6.6

Source: Yukon Electric Company
Note: If utility operating costs increase, customers may be subject to extra charges.

13.0 Tourism and Recreation

13.1 General

Tourism is an important and growing factor in the economy of the North. There is easy access to most areas by air and road transportation now reaches beyond the Arctic Circle with the Dempster Highway to Inuvik. In addition, visitors can travel by ferry or cruise ship up the Pacific coast of Alaska and then by road to Whitehorse.

Spectacular scenery, abundant wildlife and the feeling of being far away from the usual surroundings are some of the attractions which bring an increasing number of visitors to both Yukon and Northwest Territories.

YUKON

Tourism

One Yukon Department of Tourism is responsible for tourism marketing and development, and heritage resources. The department also is coordinating the government's participation in Expo '86, the world exposition to be held in Vancouver.

The objectives of the Tourism Marketing Branch are the development of visitor traffic to Yukon by increasing:

a) the recognition by potential tourists that Yukon is a desirable destination;
b) the number of visitors;
c) the average length of stay of visitors;
d) the length of the "tourism" season; and
e) the development of outdoor and winter tourism.

In 1983, over 80,000 enquirers for Yukon travel information were sent the Yukon travel guide, *"Yukon — You're More Than Welcome"*. An additional 120,000 guides were distributed through automobile associations, travel agents, tour operators, Tourism Canada, hotels and travel information centres in and outside Yukon. A total of 20,000 Yukon Travel Agents Manuals were distributed to tour operators, travel agents and airlines and to fulfil direct enquiries.

The Tourism Development Branch is responsible for coordination with industry in such areas as developing tourism strategies and development of tourism attractions and related supplies and services.

Yukon's Participation in Expo '86

The 1986 exposition theme of transportation and communication, and the location of the fair in Vancouver provide an ideal opportunity for Yukon. Yukon's participation is intended to assist in the growth of the tourism industry, to illustrate the economic opportunities in the North, and to generally enhance the image of Yukon as a place with a bright future.

The Yukon Department of Tourism does not publish a figure for employment related directly to tourism, but both the service and transportation sectors of the economy, which are tourism-related, show increases in employment. Estimates of the contribution of the industry to the economy in dollars unadjusted for inflation are shown in Table 13-1.

NWT

Tourism

During 1983, a five-year plan for developing the tourism industry in Northwest Territories was approved by the Executive Council. A comprehensive guide training program for Northwest Territories guides was also undertaken.

In direct response to requests from the NWT Travel Industry Association to have the *Explorers' Guide* published by the private sector, the 1984 edition is being published by Outcrop Ltd. of Yellowknife. Other firsts for the *Explorers' Guide* were the inclusion of advertising and 72 pages of colour.

Travel Arctic entered into negotiations with Manitoba, Saskatchewan and Alberta to form a new cooperative marketing organization to sell travel programs. Travel Arctic continued to market programs through the Canada West organization and worked closely with the NWT Travel Industry Association and the six tourism zone associations by participating in joint marketing and promotional activities.

The decline in the number of enquiries and visitors to the NWT in 1983 was proportionately less than the Canadian average. In particular, the economic recession resulted in fewer visits by US residents to Canada, including Northwest Territories.

Northwest Territories, in cooperation with Parks Canada and several provinces, has developed a new program to designate heritage rivers. The Canadian heritage rivers system will incorporate nominations for heritage rivers. The NWT input includes a survey of 41 NWT rivers in the territory.

Expo '86 in Vancouver, B.C., has been a tremendous boon to NWT tourism. The NWT Pavilion was rated as one of the top five in popularity, with some 9,000 people visiting it daily from May to October.

Recreation

A wide variety of recreational activities, organized and unorganized, is available to residents in NWT. Many communities have facilities such as arenas and playgrounds or swimming pools. Outdoor sports and recreation are natural favourites in NWT in both winter and summer. The NWT Public Library System offers services and community activities such as clubs, seasonal festivals, movies and dances are popular.

Arts and Crafts

The economic decline throughout Canada had an adverse effect on the arts and craft industry in NWT. In 1981, wholesale and retail sales totalled $5 million. One year later they had fallen by 25 per cent and major losses were suffered throughout the co-op system. Sales are steadily climbing and in 1984 totalled $4.5 million. However, the co-ops have not yet fully recovered and losses are still being experienced in this sector. Both the Federal and Territorial Governments are working to improve prospects for the future. DIAND, in addition to its promotional activities, is providing funds for the development of new strategies for the marketing of Inuit arts and craft. The GNWT is also intensifying its efforts to assist artists and is undertaking a thorough analysis of the arts and crafts sector.

13.2 Parks

13.2.1 General

Yukon and NWT both have campgrounds as well as territorial and national parks. The former are generally located on or close to highways and provide picnic sites and places for overnight camping. National parks are usually larger in area and may be less accessible. There is one national park, Kluane, in Yukon; in NWT there are three — Auyuittuq, Nahanni and Wood Buffalo.

Information on territorial parks may be obtained from the territorial offices of tourism, whose addresses were given in the preceding section.

If you are driving into either Yukon or NWT you will find a Visitor Information Centre conveniently located to provide information on the parks and campgrounds. (See Section 13.3.1.)

Information on national parks any be obtained as follows:

Kluane:
Superintendent
Kluane National Park
Haines Junction, Yukon
Y0B 1L0

Nahanni, Wood Buffalo and Auyuittuq:
Director
Prairie Region
Parks Canada
Main Floor, 114 Garry Street
Winnipeg, Manitoba
R3C 1G1

13.2.2 Kluane National Park

Kluane National Park is located in the southwest corner of Yukon bordering Alaska and British Columbia. It is accessible by road from Whitehorse or Haines, Alaska; park headquarters are at Haines Junction, Yukon.

The park is mountainous and about half its area is covered by snow and icefields year-round. Canada's highest mountain, Mt. Logan (5950 m), is in the park.

Wildlife is abundant and includes grizzly and black bears, moose, Dall sheep, mountain goats, occasional caribou, wolf, coyote, fox, wolverine, arctic ground squirrel, lynx, beaver, otter, muskrat, mink, marmot and snowshoe hare. Birds, too are numerous; over 170 species have been reported, including several that are rare elsewhere.

Recreational activities include hiking (day trip or overnight), boating on Kathleen Lake, white-water canoeing and kayaking and mountain climbing. Visitors are advised to contact a park warden for information before taking a day trip and must register for any overnight trips or climbing expeditions.

13.2.3 Nahanni National Park

Nahanni National Park is a wilderness area in the watershed of the Nahanni River, a tributary of the Liard which in turn flows into the Mackenzie near Fort Simpson, NWT, 145 km by air east of the southeast park boundary.

The park is roughly 320 km in length, reaching up the Nahanni River from the Splits, a wide and shallow stretch just upstream from Nahanni Butte where the warden station is located, to the Rabbit Kettle Hotsprings at the northwest end of the park. The river is spectacular but treacherous and experience is necessary for safe canoeing. Outfitters in the area provide guided trips which allow the less hardy to see the canyons, falls and hot springs.

There is no road access into the park, but it can be reached by air or water. Information on outfitters is available from the Director, Travel Arctic, Yellowknife, NWT X1A 2L9.

13.2.4 Wood Buffalo National Park

Wood Buffalo National Park straddles the border between Alberta and NWT. It is 44,980 kmb/2 in area and is one of the world's largest national parks.

This park was established in 1922 as a haven for Canada's last herd of wood bison. Now interbred with plains bison, the hybrid population is about 6000. The park is also famous as the summer home and breeding ground of the world's only flock of whooping cranes.

The park headquarters at Fort Smith, NWT, provides access to the campground at Pine Lake and to 50 km of hiking trails and a gravel road system which runs through the northeast section of the park. The Slave River Rapids near Fort Smith is home to North America's only colony of river-nesting white pelicans.

Recreational activities include fishing and hiking to view and photograph the interesting scenery and wildlife.

13.2.5 Auyuittuq National Park

Auyuittuq National Park on Baffin Island, NWT, means "the place which does not melt" in Inuktitut, a reference to the Penny Ice Cap, a massive glacier at the heart of the park. Created in 1972 to preserve a unique arctic wilderness of perpetual ice, jagged mountain peaks, deep valleys and fiords, the park has 24 hours of daylight from May through July and total darkness in midwinter.

Access to the park for hikers and mountain-climbers is by air via Frobisher Bay to Pangnirtung and from there to the head of the fiord by Inuit freighter canoe, snowmobile or on foot (a distance of 31 km).

13.2.6 Territorial Parks — NWT

The Government of Northwest Territories (GNWT) has two major parks now, and a further two are being created. The Department of Tourism and Parks operates a campground at Prelude Lake; within the boundaries of the park private entrepreneurs own and operate cottage sites, a fishing lodge, restaurants and other facilities of interest to tourists. At Blackstone Park on the Liard Highway, private outfitters will guide trips into Nahanni National Park.

In addition, the government operates parks jointly with the municipalities in Yellowknife, Hay River, Fort Providence, Fort Smith and Pine Point, and picnic sites and small campgrounds along major highways in the territory.

During 1983, a five-year plan for developing the tourism industry in NWT was approved by the Executive Council. A comprehensive guide training program for NWT guides was also undertaken.

13.2.7 Territorial Parks — Yukon

There are about 50 campgrounds and picnic sites throughout Yukon. Sites are cleaned regularly and permits are required, but only at Dawson is an overnight fee charged.

Campgrounds range in size from four tent sites to 100 or more. Usual facilities include tent pads with tables at each site and a centrally located well, kitchen shelter complete with stove and wood, and pit privies. When the campground is on a body of water there are usually boat launching ramps.

A comprehensive statement of territorial parks policy and objectives is being formulated.

13.3 Commercial Facilities

13.3.1 Locations, Accommodations, Rates

In both Yukon and NWT, all but the smallest communities have hotel and/or motel accommodation as well as restaurant facilities. However, reservations are usually necessary, especially in the summer. Price ranges for accommodation are generally similar to or somewhat lower than those in southern Canada, but rates are subject to change without notice and should be checked at the time of travel.

In Whitehorse (a city with three-fifths of the population of Yukon) there are 800 hotel and motel rooms, fine restaurants and cocktail lounges and all the usual urban amenities shops, cinemas, tour and travel agents, banks, hospitals, etc. Convention facilities are available for meetings of up to 400 people. The cross-country ski chalet includes a convention room in addition to a lounge, a restaurant, showers and saunas.

Outside Whitehorse and other Yukon municipalities, there are roadside lodges and well-maintained campgrounds at frequent intervals along the highways, and more than two dozen wilderness camps accessible by air. A complete listing of available recreational services and facilities is published in the official Yukon travel guide, *Yukon, Canada's Great Frontier.* Write to Tourism Yukon, Box 2703, Whitehorse, Yukon Y1A 2C6. For the traveller motoring in Yukon, government information centres are open seven days a week from mid-May to mid-September in Watson Lake, Whitehorse, Haines Junction (Kluane Park headquarters), Beaver Creek and Dawson City.

Travellers' accommodation is also widely available in the NWT from the capital, Yellowknife, with just under 500 hotel or motel rooms, to Grise Fiord, 1930 km to the northeast, which offers accommodation for 16 in seven rooms with kitchen facilities at the Grise Fiord Lodge. Along the territorial highway system there are many well-planned campgrounds and day-use sites. These usually have areas for tenting and recreational vehicle parking, sanitary facilities, covered picnic shelters and firewood. The maximum stay in one camp is 14 days; an Annual Entry Permit is required which costs $15 for non-residents and $10 for residents. In addition, some campgrounds charge $5 per night. The NWT also has over 50 lodges and camps, and many outfitters serving sport fishermen, hunters and naturalists.

Detailed information is given in *The Explorers' Guide* published by Outcrop Ltd. of Yellowknife. Write to Box 1350, Yellowknife, NWT X1A 2N9. In Yellowknife, the TravelArctic Information Centre is open all year and there are government Visitor Information Centres at 60a/N north on Highway 1 and south of Fort McPherson on the Dempster Highway.

13.3.2 Activities — Fly-in Fishing, Hunting, Touring — Accommodation, Facilities, Cost

In the north, fly-in fishing trips not only guarantee top-notch fishing, but also provide an opportunity to see this spectacular country from the air.

In Yukon the fees for fishing licences are:

Canadian residents	$5/season (April 1-March 31)
Non-residents	$5/day $10/five days $20/season
Special National Parks Licence	$4/season

The names and mailing addresses of outfitters and guides in any region may be obtained by writing or telephoning the tourism department of the territorial government concerned.

In Yukon contact:
General Inquiries
Tourism Marketing
Department of Tourism, Recreation and Culture,
Government of Yukon
Whitehorse, Yukon
Y1A 2C6
Telephone: (403) 667-5340

In NWT contact:
TravelArctic
Government of the Northwest Territories
Yellowknife, NWT
X1A 2L9
Telephone: (403) 873-7200

Prices of accommodation vary greatly, depending on the size of the party and services included, and should be checked at travel time.

Northwest Territories is well known for the trophy quality of its sport fisheries. The Tree River, Great Bear and Great Slave Lakes and the upper Mackenzie River are being managed as trophy fisheries. Charter planes with floats are available in many communities and fly-in fishing is easily arranged. Charter rates start at around $2 an hour. Fishing licence fees are $5 for Canadian residents and $15 for non-residents. Rates for the many lodges and camps vary widely, with a low of around $600 a week. Complete information on fishing regulations may be obtained from the District Manager, Fisheries and Oceans Canada, Box 2310, Yellowknife, NWT X1A 2L9.

Yukon and NWT are the last true wilderness areas in North America where big game trophy animals still exist in relatively large numbers. Hunters come from all parts of the world to participate in this activity.

In NWT, big game hunting outfitters operate in the Mackenzie Mountains for species like Dall sheep, bear, moose and caribou. They offer package trips of one or two weeks with meals and transportation included.

The Hunters and Trappers Associations in the NWT have been granted the right to control the hunting of polar bear which may be hunted only by dog team. Bookings for polar bear hunts may be made through the Hunters and Trappers Associations on Holman Island, Sachs Harbour and Allen Island. These associations may be contacted through:

Wildlife Service
Government of the Northwest Territories
Yellowknife, NWT
X1A 2L9

Stamp fees for big game species (limit of one per species) are $10 for non-residents of the NWT and $25 for non-resident aliens. Trophy fees are payable on departure and are $100 for each animal, except grizzly bear (N/A), polar bear ($500), muskox ($500) and wolf and wolverine ($50).

Lists of guides are available from the area wildlife office in the community where the hunt is to be based.

In Yukon, it is necessary for hunters to hire a registered outfitter, except for small game and migratory birds. There are 22 big game guiding areas in the territory, each having an assigned outfitter; the list is available from Tourism Yukon. General travel and accommodation information for Yukon is available through:

Yukon Visitors Association
208D Steele Street
Whitehorse, Yukon
Y1A 2C6

There are many kinds of wilderness expeditions in addition to fishing and hunting. Ski-touring, snowshoeing, dog-sledding, hiking, mountaineering, horseback riding and canoeing tours are conducted from various camps and lodges. Such trips may be guided, or the traveller may rent gear and basic transportation for unguided trips. Topographical maps may be obtained from:

Department of Energy, Mines and Resources
Surveys and Mapping Branch
615 Booth Street
Ottawa, Ontario
K1A 0E9

13.4 Sports

13.4.1 Local Events — Participation

In Yukon, the Recreation Branch of the Department of Education provides financial assistance to communities for the development of sports and recreation programs. Activities start with dog races in January and continue through the winter, including such events as log sawing, snowshoe and snowmobile races, and such local specialties as smoosh-skiing, pancake races and tea boiling. Spring and summer bring spring skiing and highland games, horse shows, golf, cross-country runs and similar events. The Klondike International Outhouse Race is held each Labour Day weekend in Dawson City.

Cross-country skiing is a particularly popular sport in Yukon, where the Whitehorse Ski Club has a membership of 1500. In 1981, the final event of the World Cup Cross-Country Ski Series was held in Whitehorse at the ski chalet, where there is a 35 km network of world class ski trails. The list of events in a typical year is given in Table 13-3.

Northwest Territories has recently seen a dramatic increase in the number of community sports associations and their memberships, sparked by the efforts of Sport North (the Federation of Territorial Sport Associations) in developing sporting opportunities, qualified coaches and community recreational leadership. Recreational sports often have cultural aspects, as in the Northern Games. These feature traditional Inuit and Indian sports, dances, drumming competitions and the popular Good Woman Contest a display of traditional life skills. The Northern Games are usually held every two years on a national basis, while regional events take place annually.

As in Yukon, winter sports include dog races, skiing, snowshoe and snowmobile racing. There are also such imported games as curling, together with uniquely northern events such as igloo building. A complete list of events for a typical year is given in Table 13-4.

13.5 Special Events

Both Yukon and NWT have long and interesting programs of special events, most of which are repeated annually. Tables 13-3 and 13-4 list these as published in the respective tourist brochures for 1985. For full details and dates for subsequent years, contact the addresses given in the footnotes to each list.

References

Explorers' Guide. Yellowknife: TravelArctic, Government of the Northwest Territories.

Yukon: Canada's Great Frontier. Whitehorse: Yukon Visitors Association and Tourism Yukon.

Table 13-1

Estimated dollar value of tourism to the economy of Yukon in year shown

Year	Number of visitors*	Dollars (unadjusted for inflation)
1962	not available	2,000,000
1971	183,700	12,000,000
1981	386,800	51,000,000
1983	394,000	77,000,000

Source: INAC Publication QS-2003-020-EE-A2; Yukon Economic Research and Planning Unit and Department of Tourism, Recreation and Culture, Yukon.

* The number shown is taken from border crossing data. Persons entering from the south who go on to visit Alaska, returning via Yukon, would be counted twice.

Table 13-2

Number of visitors and estimate of their expenditure in the NWT in year shown

Year	Number of visitors	Dollars (unadjusted for inflation)
1968	9,000	3,200,000
1971	17,700	5,500,000
1982	44,000	40,000,000

Source: INAC Publication QS-2003-020-EE-A2 and Bureau of Statistics, GNWT and NWT Data Book 84/85

Table 13-3

Typical Special Events Calendar — Yukon

Approximate Date	Event	Location
January	Yukon Championship Dog Race	Whitehorse
February 19-20	Kiki Bird Days	Watson Lake
February 2-6	Ice Worm Squirm	Faro
February 21-28	Sourdough Rendezvous	Whitehorse
February 14	Bay Citizens Tour	Whitehorse
March 12-14	Winterlude	Carmarcks
March 19-21	Spring Carnival	Dawson City
early March	Winter Carnival	Mayo
mid-March	Annual Winter Carnival	Elsa
March 25-28	Sleeping Bag Bonspiel	Faro
late March	Carcross-Atlin Mail Run	Carcross
late March	International Curling Bonspiel	Whitehorse
early April	Old Timer's Hockey Tournament	Whitehorse
late April	Spruce Bog Craft Fair and Sale	Whitehorse
Easter Saturday	Haines Highway Marathon	Haines Road
May 22-23	Break-up Drama Festival	Dawson City
late June	Annual Highland Games	Whitehorse
June 18-20	Annual Dog Show	Whitehorse
June 19-20	CKRW Kiwanis Annual Yukon Family Fishing Derby	Whitehorse
late June	Horse Show	Whitehorse
June 21	Tennis Tournament	Whitehorse
June 20	Golf Tournament	Whitehorse
July 4	Canada Day/Independence Day	Dawson City
July 17	International Midnight Dome Race	Dawson City
July 18	Arizona Charlie Meadows Night	Dawson City
July 18	Inner Tube Race	Whitehorse
July 24-25	Music Festival	Dawson City

Table 13-3 *(continued)*

Typical Special Events Calendar — Yukon

Approximate Date	Event	Location
July	Spruce Bog Craft Fair and Sale	Whitehorse
August 13-16	Discovery Days	Dawson City
August 13-16	Discovery Days	Watson Lake
August 20-22	Fireweed Festival	Faro
mid-August	Kiwanis Horticultural & Hobby Show	Whitehorse
late August	Softball Tournament	Whitehorse
September 3-5	Farrago Music Festival	Faro
September 5	Klondike International Outhouse Race	Dawson City
November	Spruce Bog Craft Fair and Sale	Whitehorse

Source: **Yukon (Canada's Great Frontier) 1982,** a publication of Yukon Visitors Association, 208D Steele Street, Yukon Y1A 2C6, and Tourism Yukon, Box 2703-SC, Whitehorse, Yukon Y1A 2C6

Table 13-4

Typical Special Events Calendar — NWT

Approximate Date	Event	Location
March	Winter Carnival	Fort Resolution
March	Beaver Tail Jamboree	Fort Simpson
mid-March	Wood Buffalo Frolics	Fort Smith
March	Fitz-Smith Ski-a-thon	Fort Fitzgerald to Fort Smith
late March	Ookpik Carnival	Hay River
late March	International Bonspiel	Inuvik
late March	Winter Carnival	Norman Wells
mid-March	Moccasin Carnival	Wrigley
late March	Caribou Carnival and Championship Dog Derby	Yellowknife
weekend after Easter	Peel River Jamboree	Fort MacPherson
April	Toonik Tyme	Frobisher Bay
April	Top of the World Ski Championships	Inuvik
April	Karnival Kapers	Pine Point
April	Rankin Inlet Snowmobile Race	Ranklin Inlet
April	Beluga Jamboree	Tuktoyaktuk
Easter weekend	Annual Sportsmen's Spiel	Yellowknife
May	White Fox Jamboree	Sachs Harbour
May	Umingmuk Frolics	Cambridge Bay
June 22	Hub of the North Marathon	Hay River
June	Kingalik Jamboree	Holman Island
third weekend of June	Pine Days	Pine Point
June	Annual Midnight Golf Tournament	Yellowknife
June 21-July 1	Canada Week Celebrations	Yellowknife
late June	Folk on the Rocks	Yellowknife
mid-July	Northern Games	various
July 1	Canada Day	Fort Simpson Frobisher Bay Hay River

Table 13-4 *(continued)*

Typical Special Events Calendar — NWT

Approximate Date	Event	Location
third week of July	Tuk Cup	Tuktoyaktuk
mid-July	Dene Celebrations	Southern Mackenzie
first weekend of August	Sports Day	Fort Liard
August	Mackenzie Daze	Fort Providence
August 15	Deninoo Days	Fort Resolution
August	Keewatin Regional Summer Festival	Whale Cove
early September	Fall Fair and World Championship Fiddling and Jigging Contest	Hay River
September	Country Fair North of Sixty	Yellowknife
Thanksgiving	Delta Daze	Inuvik

Source: Explorers' Guide '82 (Canada's Arctic) Northwest Territories, a publication of TravelArctic*, Government of the Northwest Territories, Yellowknife, NWT X1A 2L9

* N.B. Now published by Outcrop Ltd. of Yellowknife.

14.0 Locations of Government Offices in the North

There are offices of both the federal and territorial governments throughout the North. Locations, mailing addresses and, in most cases, telephone numbers are listed below.

14.1 Federal Government Departments and Agencies.

Canadian Broadcasting Corporation: *Telephone Number*

CBC Inuvik
Bag Service 8
MacKenzie Road
Inuvik, NWT
X0E 0T0 (403) 979-4411

CBC MacKenzie
Box 160
Yellowknife, NWT
X0E 1H0 (403) 873-3464

CBC Frobisher Bay
Box 490
Frobisher Bay, NWT
X0A 0H0 (819) 979-5353

CBC Keewatin
Rankin Inlet, NWT
X0C 0G0 (819) 645-2885

CBC Yukon
3101-3rd Avenue
Whitehorse, Yukon
Y1A 1E5 (403) 667-6261

Central Mortgage and Housing Corporation:

CHMC
Bellanca Building
PO Box 2460
Yellowknife, NWT
X1A 2T8 (403) 873-2637

CMHC
2090A
Financial Plaza
Whitehorse, Yukon
Y1A 1B6 (403) 667-4237

Department of Communications:

Inspector
Box 540
Fort Smith, NWT
X0E 0T0 (403) 872-2187

10th floor
Precambran Building
Box 2700
Yellowknife, NWT
X1A 2R1 (403) 873-3568

Department of Employment and Immigration:

Director of Employment and Insurance
CEIC
Scotia Centre
5102-50th Avenue
PO Box 1950
Yellowknife, NWT
X0E 1H0 (403) 920-8400

Director of Employment and Insurance
CEIC
Royal Centre
1055 Georgia Street West
PO Box 11145
Vancouver, BC
V6E 2P8 (604) 666-8584

Canada Employment Centres are located as follows:

Federal Building
PO Box 380
Fort Simpson, NWT
X0E 0N0 (403) 695-2238

Pinecrest Building
McDougal Road
PO Box 1018
Fort Smith, NWT
X0E 0P0 (403) 872-2747

Royal Bank Building
PO Box 639
Frobisher Bay, NWT
X0A 0H0 (819) 979-5315

Federal Building, Room 202
PO Box 1065
Hay River, NWT
X0E 0R0 (403) 874-6739

Kingmingya Road
PO Box 1678
Inuvik, NWT
X0E 0T0 (403) 979-2122

General Delivery
Rankin Inlet, NWT
X0C 0G0 (819) 645-2853

Room 101, Federal Building
Whitehorse, Yukon
Y1A 2B5 (403) 667-5050

Scotia Centre, 2nd Floor
5102-50th Avenue
Yellowknife, NWT
X1A 2R3 (403) 920-8400

Department of Energy, Mines and Resources:

Precambran Building
2922-52nd Street
Yellowknife, NWT
X0E 1H0 (403) 873-4573

2078-2nd Avenue
Whitehorse, Yukon
Y1A 1B1 (403) 668-2828

Department of the Environment:

In addition to the locations shown, there are weather stations operated by the Atmospheric Environment Service at many northern points, in general wherever there is an airport with regular service. See the local telephone directory for listings or call the airport.

Environmental Protection Service
Room 225, Federal Building
308 Main Street
Whitehorse, Yukon
Y1A 2B5 (403) 667-6487

Canadian Wildlife Service
202-204 Range Road
Whitehorse, Yukon
Y1A 3V1 (403) 667-2285

Canadian Wildlife Service
9th Floor
Bellanca Building
Box 637
Yellowknife, NWT
X1A 2N5 (403) 873-3962

Environmental Protection Service
Box 637
Yellowknife, NWT
X1A 2N5 (403) 873-3456

Department of Fisheries and Oceans:

122 Industrial Road
Whitehorse, Yukon
Y1A 2T9 (403) 667-2235

Box 2310
Yellowknife, NWT
X0E 1H0 (403) 873-5831

Department of National Health and Welfare:

In addition to the regional offices of the department in Whitehorse and Yellowknife, there are hospitals, public health centres and nursing stations at many northern locations.

Regional Director
Medical Services Branch
Health and Welfare Canada
Yukon Manor
2 Hospital Road
Whitehorse, Yukon
Y1A 3H8 (403) 667-6461

Regional Director
Medical Services Branch
Health and Welfare Canada
Bag 7777
Yellowknife, NWT
X1A 2R3 (403) 873-5911

Department of Indian and Northern Affairs:

Northern Affairs Program
200 Range Road
Whitehorse, Yukon
Y1A 3V1 (403) 668-5151

PO Box 1500
Yellowknife, NWT
X1A 2R3 (403) 920-8110

Indian and Inuit Affairs Program

PO Box 4100
Whitehorse, Yukon
Y1A 3S9 (403) 667-7855

4914-50th Street
Bellanca Building
PO Box 2760
Yellowknife, NWT
X0E 1H0 (403) 873-5191

Department of Justice:

Yellowknife Regional Office
City Hall Building
Box 8
Yellowknife, NWT
X0E 1H0 (403) 873-3551

Whitehorse Crown Attorney's Office
Room 205, Casca Building
3105-3rd Avenue, Box 1076
Whitehorse, Yukon
Y1A 1E5 (403) 667-4418

Department of Labour:

Labour Affairs Officer, Mountain Region
Room 208
3105-3rd Avenue
Whitehorse, Yukon
Y1A 1E5 (403) 668-4346

See Department of Employment and Immigration for listing of Canada Manpower Offices.

Department of National Defence:

Commanding Officer
Canadian Forces Northern Region Detachment, Whitehorse
Room 241
Federal Building
Whitehorse, Yukon
Y1A 1H5 (403) 667-2559

Commanding Officer
Canadian Forces Station Inuvik
Box 1450
Inuvik, NWT
X0E 0T0 (403) 979-2556

Department of National Revenue:

Manager of Customs
Room 116, Federal Building
P.O. Box 4520
Whitehorse, Yukon
Y1A 2R8 (403) 667-6471

Department of Public Works:

Civil Engineering
201 Range Road
Whitehorse, Yukon
Y1A 3A4 (403) 668-2181

Public Works Canada
Box 518, Bag 9999
Yellowknife, Yukon
X1A 2R3 (403) 873-7114

Department of Regional Industrial Expansion:

301-108 Lambert Street
Whitehorse, Yukon
Y1A 1Z2 (403) 668-4655

Precambran Building
10th Floor
Yellowknife, NWT
X1A 1C0 (403) 873-6225

Royal Canadian Mounted Police:

There are posts and detachments of the RCMP throughout the North. Check local telephone directories for listings, or contact:

Commanding Officer
"M" Division
4100-4th Avenue
Whitehorse, Yukon
Y1A 1H5 (403) 667-5555

Commanding Officer
"G" Division
RCMP
Bag 5000
Yellowknife, NWT
X0E 1H0 (403) 920-8322

Department of the Secretary of State:

Room 240, Federal Building
308 Main Street
Whitehorse, Yukon
Y1A 2B5 (403) 668-2721

Unit 1, Tallah Building
PO Box 610
Yellowknife, NWT
X1A 2N5 (403) 920-8270

Department of Transport:

The department is responsible for the operation of most airports throughout the North; see local directories for listings of airport managers.

There are, in addition, offices responsible for various specialized functions:

Arctic Transportation Directorate
Box 1200
Yellowknife, NWT
X1A 2N5 (403) 873-5380

Area Telecommunications and Electronics
Box 310
Yellowknife, NWT
X0E 1H0 (403) 873-4041

Area Telecommunications and Electronics
Room 215, Operations Building
Whitehorse Airport
Whitehorse, Yukon (403) 668-2662

Canadian Coast Guard Base
Box 5002
Hay River, NWT
X0E 0R0 no listing

Department of Communications
Telecommunications Regulations Branch
Room 201 — 4133 — 4th Avenue
Whitehorse, Y.T.
Y1A 1H8 (403) 667-5012

Supply & Services Canada
Whitehorse Purchasing Office
204 Lambert Street
Financial Plaza Building
Whitehorse, Y.T.
Y1A 1Z4 (403) 668-5808

NorthwesTel
301 Lambert Street
Box 2727
Whitehorse, Y.T.
Y1A 4Y4 (403) 668-5300

Airport Manager
Transport Canada
Room 3, Hangar 'A', Airport
Whitehorse, Y.T.
Y1A 3E5 (403) 668-2300

Public Service Commission of Canada
302 — 4114 — 4th Avenue
Whitehorse, Y.T.
Y1A 4N7 (403) 668-4487

Canada Post Office
308 Main Street
Whitehorse, Y.T.
Y1A 2B0 (403) 667-2412

Northern Canada Power Commission
Room 301, Federal Building
Whitehorse, Y.T.
Y1A 2B5 (403) 667-2828

14.2 Government of Yukon

Unless otherwise noted all government departments are located in the:

Yukon Government Administration Building
2071-2nd Avenue
Whitehorse, Yukon
Y1A 1B2

Mail should be addressed to the department concerned at:

Government of Yukon
Box 2703
Whitehorse, Yukon Y1A 2C6

Executive Council

Hon. Tony Penikett, Government Leader Minister of: Executive Council Office, Finance, Public Service Commission, Economic Development: Mines & Small Business	*NDP Whitehorse West* M.L.A. Office: 667-5122
Hon. Roger Kimmerly, Minister of: Justice	*NDP Whitehorse South Centre* M.L.A. Office: 667-5877
Hon. Dave Porter, Minister of: Renewable Resources, Tourism	*NDP Watson Lake* M.L.A. Office: 667-5877
Hon. Piers McDonald, Minister of: Education, Community & Transportation Services	*NDP Mayo* M.L.A. Office: 667-5974
Hon. Margaret Joe, Minister of: Health & Human Resources, Minister for the Women's Bureau	*NDP Whitehorse North Centre* M.L.A. Office: 667-5974

*Address for Cabinet Ministers: Box 2703, Whitehorse, Yukon YlA 2C6

Government Departments and Agencies:

Executive Council Office

Deputy Minister	667-5421
Intergovernmental Relations	667-5297
Land Claims Secretariat	667-5717
Public Affairs	667-5431
Federal Relations Office (Ottawa)	(613) 234-3206

Legislative Assembly Office

Clerk of the Assembly and Chief Electoral Officer	667-5498
Government Members	667-5376
Opposition Members	667-5663

Consumer & Corporate Affairs

Deputy Minister	667-5256
Administrator, Consumer Services	667-5257
Administrator, Corporate Affairs	667-5225
Administrator, Labour Services	667-5259

Economic Development

Deputy Minister	667-5466
Director, Administrative Services	667-5378
Director, Economic Research & Planning	667-5461
Director, Energy/Special ARDA Branch	667-5462

Education, Advanced Education & Manpower

Deputy Minister	667-5126
Assistant Deputy Minister, Elementary & Secondary Schools	667-5141
Coordinator, French Language Centre	667-5610
Assistant Deputy Minister, Advanced Education & Manpower	667-5131
Director, Yukon College	667-4262

Finance

Deputy Minister	667-5343

Government Services

Deputy Minister	667-5744
Purchasing Information	667-5735
Manager, Transportation/Communications	667-5793
Queen's Printer	667-5783
Director, Administration	667-5410
Building & Rentals Manager Property Management	667-5104
Director, Public Works	667-5150
Manager, Building Construction	667-5805

Health & Human Resources

Deputy Minister	667-5746
General Inquiries	667-5674
Health Services	667-5209
Coordinator, Alcohol & Drug Services	667-5627
Coordinator, Vocational Rehabilitation Services	667-5669
Communication Disorders Clinic	667-5913

Highways & Transportation

Deputy Minister	667-5144
Director, Finance & Administration	667-5311
Manager, Highway Maintenance	667-5761
Manager, Highway Engineering	667-5456
Manager of Airports	667-5830
Motor Vehicles	667-5315
Chief, Weigh Stations & Enforcement	667-5920
Transport Public Utilities Board	667-5832

Justice

Deputy Minister	667-5124
Land Titles	667-5612
Public Administrator/Chief Coroner	667-5317
Judicial Administrator, Administrative Services	667-5446
Territorial Court	667-5441
Sheriff, Sheriff's Office	667-5451
Judges' Secretary, Supreme Court of Yukon	667-4431
Coordinator, Women's Bureau	667-5182
Director, Corrections	668-4903
Chief Probation Officer, Adult Probation Services	667-5231

Municipal & Community Affairs

Deputy Minister	667-5155
Municipal Services	667-5155
Lands Office	667-5215
Director, Municipal Engineering Branch	667-5707
Director, Property Assessments	667-5234
Director, Protective Services	667-5127

Public Service Commission

Deputy Minister	667-5252
Director, Recruitment & Labour Relations	667-5250
Director, Compensation	667-5201

Renewable Resources

Deputy Minister	667-5460
Land Planning Branch	667-5905
Wildlife Management Branch	667-5721
Director, Wildlife & Parks Services Branch	667-5715
Regional/District Offices	
Dawson	993-5492
Haines Junction	634-2247
Mayo	996-2202
Ross River	969-2202
Watson Lake	536-7363

Tourism Recreation & Culture

Deputy Minister	667-5238
Director, Library & Archives	667-5275
Director, Heritage Branch	667-5363
Director of Recreation	667-5608
Director of Tourism	667-5340
Expo 86 Coordinator	667-5435

Workers' Compensation Board General Inquiries	667-5645
Yukon Housing Corporation General Inquiries	667-5759
Yukon Liquor Corporation Deputy Minister	667-5245

14.3 Government of Northwest Territories

Unless otherwise noted all NWT offices are located in Yellowknife.

Mailing address for all departments:

P.O. Box 1320,
Government of Northwest Territories
Yellowknife, NWT
X1A 2L9

Executive Council		*Area Code (403)*
Government Leader and Minister of Personnel	Hon. Nick Sibbeston	873-7112
Minister of Finance and Government Services	Hon. Thomas Butters	873-7128
Minister of Renewable Resources, Culture and Communications, and Women's Secretariat	Hon. Red Pedersen	873-7959
Minister of Economic Development & Tourism, and Energy, Mines & Resources	Hon. Tagak Curley	873-7139
Minister of Health and Social Services	Hon. Bruce McLaughlin	873-7113
Minister of Education	Hon. Dennis Patterson	873-7123
Minister of Public Works & Highways, and Local Government	Hon. Gordon Wray	873-7962

Commissioner's Office

Commissioner John H. Parker	873-7400

Legislative Assembly

Speaker of the Legislative Assembly 873-7629 Clerk 873-7457

Northwest Territories Government - Regional Offices:

Regional Director Baffin Region FROBISHER BAY, N.W.T. X0A 0H0	(819) 979-5341

Regional Director (403) 872-7220
Fort Smith Region
P.O. Box 5
FORT SMITH, N.W.T.
X0E 0P0

Regional Director (403) 979-7112
Inuvik Region
Bag Service No. 1
INUVIK, N.W.T.
X0E 0T0

Regional Director (819) 645-2856
Keewatin Region
P.O. Bag Service 002
RANKIN, INLET, N.W.T.
X0C 0G0

Regional Director (403) 983-2138 Ext. 200
Kitikmeot Region
CAMBRIDGE BAY, N.W.T.
X0E 0C0

Government of the Northwest Territories
P.O. Box 1320
YELLOWKNIFE, N.W.T.,
X1A 2L9

Government Departments

Executive Council Secretariat	873-7100
Aboriginal Rights & Constitutional Development Secretariat	873-7143
Regional Operations Secretariat	873-7910
Priorities & Planning Secretariat	873-7334
Security	873-7131
Financial & Administration Services	873-7241
Energy, Mines & Resources Secretariat	873-7423
Audit Bureau	873-7106
Bureau of Statistics	873-7983
Intergovernmental Affairs Protocol Officer	873-7150

Ottawa Office

Senior Advisor (613) 234-6525
Intergovernmental Affairs
Government of the N.W.T.
Suite 912 — 350 Sparks Street
OTTAWA, Ontario
K1R 7S8

Edmonton Office

Senior Liaison Officer (403) 423-1959
Government of the N.W.T.
830 Melton Building
10310 Jasper Avenue
EDMONTON, Alberta,
T5J 1Y7

Department of Economic Development & Tourism

Economic Development Agreement Secretariat	920-8743
Financial Services & Administration	873-7532
Tourism & Parks	873-7903
Business Development	873-7229

Department of Education

Advanced Education, Asst. Deputy Minister	873-7252
Program Services Division Asst. Deputy Minister	873-7234
Thebacha College, Fort Smith Director, William Stapleton	872-7520

Department of Finance

Comptroller-General	873-7338
Finance & Administration	873-7158
Treasury	873-7308
Comptrollership	873-7164

Financial Management Secretariat

Deputy Secretary to the Financial Management Board	873-7165

Department of Government Services

Finance	873-7522
Supply Services	920-8663
Petroleum Products	873-7201
Office Services & Administration	920-8654
Motor Vehicles	873-7406
Systems & Computer Services	873-7521
Safety Division	873-7430
Mining Inspection Services	873-7075
Consumer Services	920-8055

Liquor Control System
P.O. Box 1130
HAY RIVER, N.W.T.
X0E 0R0 874-2100

Department of Health

Hospital Operations	873-7714
Health Programs & Standards	873-7711
Health Insurance Administration	873-7714

Department of Culture and Communications

Language Bureau	873-7616
Public Affairs Division	873-7251
Audio-Visual Section	873-7258
Publications & Production Division	873-7247

Department of Justice & Public Services

Finance & Administration	873-7641
Legal Division	873-7437
Legislation Division	873-7462
Legal Services Board	873-7450
Land Titles/Legal Registries	873-7490
Court Services	873-7488

Department of Municipal and Community Affairs

Finance & Administration	873-7613
Development	873-7302
Policy — Legislation	873-7232
Municipal Affairs Division	873-7329
Land & Assessment Division	873-7997
Community Airports Division	873-7725
Sport & Recreation Division	873-7781
Community Planning & Development Division	873-7569

Department of Personnel

Finance & Administration	873-7417
Staff Relations	873-7504
Labour Relations	873-7235
Personnel Services	873-7121
Office of Native Employment	873-7594

Department of Public Works & Highways

Policy, Planning & Training Division	873-7325
Contracts and Capital Planning	873-7256
Finance Division	920-8774
Architectural Division	873-7535
Engineering Division	873-7826
Operations Division	873-7397
Energy Conservation	873-7202
Highways Division	873-7328

Department of Renewable Resources

Finance & Administration	873-7752
Pollution Control Division	873-7654
Wildlife Management	873-7411
Field Services	920-8716
Environmental Planning & Assessment	920-8046
Science Advisory Board	873-7592

Department of Social Services

Finance & Administration	873-7313
Policy Planning & Support Services	873-7703
Corrections Service	873-7646
Social Service Programs	873-7119
Family & Children's Services	873-7312
Alcohol & Drug Services	873-7155
Financial Assistance Services	873-7312
Area Social Services	873-7276
Yellowknife Receiving Home	873-7298
Yellowknife Correctional Centre	873-4465

Independent Agencies, Boards and Councils

Advisory Council on the Status of Women
P.O. Box 1320,
YELLOWKNIFE, N.W.T.
X1A 2L9
Telex 034-4-5528
Contact Minnie Jacobson 920-8775

Apprenticeship and Tradesmen's Qualification Board
P.O. Box 1320,
YELLOWKNIFE, N.W.T.
X1A 2L9
Contact Brian Wainwright 873-7367

Arctic Co-operatives Limited
P.O. Box 1320,
YELLOWKNIFE, N.W.T.
X1A 2L9
Contact Executive Secretary 873-3481 Ext. 112

Eskimo Loan Fund Advisory Board
P.O. Box 1320,
YELLOWKNIFE, N.W.T.
X1A 2L9
Contact C.L. Sanford 873-7363

Highway Transport Board
P.O. Box 697,
YELLOWKNIFE, N.W.T.
Contact Mr. Dale Thompson 873-7494
873-7495

Labour Standards Board of the Northwest Territories
P.O. Box 1320,
YELLOWKNIFE, N.W.T.
X1A 2L9
Contact Helen Roberts 873-7924

Legal Services Board of the Northwest Territories
P.O. Box 1320
YELLOWKNIFE, N.W.T.
X1A 2L9
Contact W. Douglas Miller 873-7450

Northwest Territories Alcohol and Drug Co-ordinating Council
P.O. Box 1320
YELLOWKNIFE, N.W.T.
X1A 2L9
Contact June Heywood 920-2064

Northwest Territories Business Loans and Guarantees Board
P.O. Box 1320
YELLOWKNIFE, N.W.T.
X1A 2L9
Contact Marc Rioux 873-7516

Northwest Territories Housing Corporation
P.O. Box 2100
YELLOWKNIFE, N.W.T.
X1A 2P6
Chairman, Gary Jaeb 873-7850
President, P.H. Beaubier 873-7850
Manager, Kathryn Garven 873-7852

Finance and Administration Division

Vice-President, Lloyd Clark	873-7897
Comptroller, Emil Homenuik	873-7864
Material Management Manager, Bob Loftus	873-7869
Personnel Administration Manager, Jack Conroy	873-7860

Construction and Development Division

Vice-President, Norman Ridgely	873-7875
Development Manager, Willie Herzog	873-7886
Lands and Sites Manager, Ron McCaw	873-7878

Programs and Planning Division

Vice-President, Hal Logsdon	873-7898
Rental Programs Head, Jalal Toeg	873-7898
Homeownership Programs Head, Jim Fennell	873-7894
Capital Planning Manager, Jim Atkin	873-7858

Northwest Territories Liquor Licensing Board
Hay River
X0E 0R0
Contact Dorothy Mellor 873-7300

Northwest Territories Public Utilities Board
P.O. Box 697,
YELLOWKNIFE, N.W.T.
X1A 2N5
Contact Dale Thomson 873-7494,5

Northwest Territories Social Assistance Appeal Board
P.O. Box 1320,
YELLOWKNIFE, N.W.T.
X1A 2L9
Contact Dick Clarke 873-7160

Northwest Territories Water Board
P.O. Box 5000
YELLOWKNIFE, N.W.T.
X1A 2R3
Contact Pamela Le Mouel 920-8191

Science Advisory Board of the Northwest Territories
P.O. Box 1617
YELLOWKNIFE, N.W.T.
X1A 2P2
Contact Dan Billing 873-7592

Special Agricultural and Rural Development Act (ARDA) Committee
P.O. Box 1320
YELLOWKNIFE, N.W.T.
X1A 2L9
Contact John McGregor 873-7388

Teacher Certification Board
P.O. Box 293,
YELLOWKNIFE, N.W.T.
X1A 2N2
Contact Sandra Thompson 873-7392

Territorial Hospital Insurance Services Board
P.O. Box 1320,
YELLOWKNIFE, N.W.T.
X1A 2L9
Contact Edward Timoffee 920-8931

Workers' Compensation Board
P.O. Box 8888
YELLOWKNIFE, N.W.T.
X1A 2R3

Bryan C. Roberts, Executive Director	873-7557
Michael Moore, Acting Chairperson	
Members	
Willie Adams	(819) 925-9927
William Berezowski	476-5037
William Hettrick	873-4803
Arnold Hope	695-2565
Dale Johnston	873-3655
Robert Kuptana	396-3321
John Todd	(819) 645-2949
Mike Zubko	979-3190